CANADIAN ARCTIC GAS PIPELINE LIMITED

DESIGN DRAWINGS

(SECTION 8 b 3)

AND

FLOW DIAGRAMS

(SECTION 8 b 4)

DRAWINGS AND FLOW DIAGRAMS

THIS VOLUME CONTAINS SCHEMATIC ARRANGEMENTS AND SPECIAL DESIGN DRAWINGS, AND FLOW DIAGRAMS, FOR APPLICANT'S PROPOSED FACILITIES.

DRAWINGS

SHEET No	DRAWING No	TITLE
A-1	401-0001, 401-1000, 402-1000 403-1000, 404-0001, 404-1000 405-1000.	TYPICAL COMPRESSOR STATION CONFIGURATIONS
B-1	0300-6000, 0300-6030	MAINLINE BLOCK VALVE ASSEMBLY & TYPICAL SCRAPER TRAP
C-1	0700-1000	TYPICAL MEASUREMENT STATION PLOT PLAN
D-1	1-0500-3002, 1-0500-3005	TYPICAL DIVISION-DISTRICT HEADQUARTERS AND MAINTENANCE UNIT PLOT PLAN TYPICAL DETAILS OF EQUIPMENT AND BUILDING FOUNDATIONS
E-1	2-0800-7024, 1-0800-7025 4-0800-7026	PLOT PLAN AND ELEVATION DETAILS FOR TYPICAL TERRESTRIAL MICROWAVE COMMUNICATION SITES
E-2	4-0800-7010, 4-0800-7017 4-0851-7003	PIPELINE COMMUNICATIONS AND CONTROL REQUIREMENTS
F-1	4-0100-0002, 4-0100-0003	TYPICAL UNCASED ROAD CROSSING & CASED RAILWAY CROSSING
G-1	0-0900-9001, 0-0900-9002 0-0900-9003, 0-0900-9004	CATHODIC PROTECTION INSTALLATIONS TYPICAL GROUND BEDS
H-1	1C-0209-1001, 1C-0210-1001	FIRTH RIVER CROSSING PROFILE AND PLAN VIEWS
H-2	1E-0209-1001, 1E-0210-1001	PEEL RIVER CROSSING PROFILE AND PLAN VIEWS
H-3	1E-0209-1003, 1E-0210-1003	MACKENZIE RIVER CROSSING (POINT SEPARATION) PROFILE AND PLAN VIEWS
H-4	1A-0209-1001, 1A-0210-1001	MACKENZIE RIVER CROSSING (SWIMMING POINT) PROFILE AND PLAN VIEWS
H-5	1B-0209-1007, 1B-0210-1007	GREAT BEAR RIVER CROSSING PROFILE AND PLAN VIEWS
H-6	1B-0209-1017, 1B-0210-1017	MACKENZIE RIVER CROSSING (BURNT ISLAND) PROFILE AND PLAN VIEWS
H-7	1B-0209-1018, 1B-0210-1018	LIARD RIVER CROSSING PROFILE AND PLAN VIEWS
H-8	2A-0209-1001, 2A-0210-1001	PEACE RIVER CROSSING PROFILE AND PLAN VIEWS
H-9	2A-0209-1003, 2A-0210-1003	ATHABASCA RIVER CROSSING PROFILE AND PLAN VIEWS
H-10	2C-0209-1004, 2C-0210-1004	KOOTENAY RIVER CROSSING PROFILE AND PLAN VIEWS
H-11	4-0210-1099	TYPICAL STREAM CROSSING PROFILES

FLOW DIAGRAMS

Flow diagrams are presented which show the maximum capacity of Applicant's proposed pipeline system for the first five years of operation, under average winter (October 19 to April 20) and average summer (April 20 to October 19) conditions. The formulae and assumptions used to generate the flow diagrams are given in Section 8.b 2, Flow Formulae and Basic Assumptions. The connecting facilities of Alaskan Arctic Gas Pipeline Company are shown as well as Applicant's facilities in order to demonstrate the capabilities of the combined facilities north of the Canada-United States border.

The proposed system includes two gas supply lines which join at the origin of the main line at Travaillant Lake, the main line from Travaillant Lake to Caroline, Alberta, and two gas delivery lines which begin at the terminus of the main line near Caroline, as shown in Section 8.a 2, System Map. The data shown on the flow diagrams for the two gas supply lines and the two gas delivery lines reflect the maximum capacity of the entire system. That is, the sum of the maximum delivery capacities of the two gas supply lines is equal to the maximum capacities of the main line at its inlet, and the sum of the maximum capacities of the two gas delivery lines at their inlets is equal to the maximum delivery capacity of the main line. Each gas supply and gas delivery line has a maximum capacity somewhat in excess of that shown, but these capacities cannot be used simultaneously because the total flow is restricted by the maximum capacity of the main line. The maximum capacity of the main line at its inlet is prorated to each gas supply line in proportion to the design gas volumes from each supply source. The maximum delivery capacity of the main line is divided equally between the two gas delivery lines.

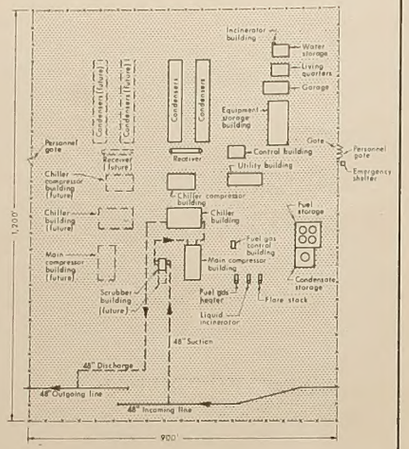
As discussed in detail in Section 8.b 1, System Configuration, compressor station equipment was selected so that no major equipment replacement would be required to transport optimum gas volumes (i.e.; those volumes that result in the lowest unit cost of service). As a result, there is excess compressor horsepower available at the compressor stations on the gas supply and gas delivery lines because the volumes in these lines are below optimum levels.

There is also excess compressor horsepower available on the main line of the system in the first operating year as a result of balancing the construction resource requirements for the facilities required for the first and second operating years. Three compressor stations, M-07, M-11 and M-15, that are not required by the projected gas volumes until the second operating year, are constructed for the first operating year. In addition, facilities in excess of those required for the first operating year are constructed at Stations M-19, M-21, M-25, M-29 and M-33. Each of the stations in this latter group requires a single compressor unit for the first-year gas volumes; two units are required for the second operating year and are installed for the first operating year. Similarly, the gas-cooling facilities at Stations M-21, M-25, M-29 and M-33 are not required until the second operating year but are installed for the first operating year.

It is assumed that these excess facilities will be completed to the extent they can be started and operated to check out all the equipment and ensure that the facilities are ready for the second year of operation. The facilities will be available for service but will not normally be used during the first operating year. The flow diagrams for the first operating year, therefore, reflect that the excess facilities are not used but are available.

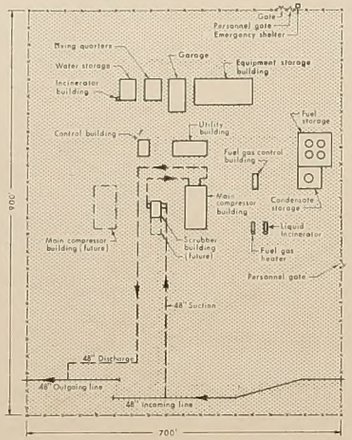
I-1	FLOW DIAGRAM, AVERAGE WINTER CONDITIONS - OPERATING YEAR 1
I-2	FLOW DIAGRAM, AVERAGE SUMMER CONDITIONS - OPERATING YEAR 1
I-3	FLOW DIAGRAM, AVERAGE WINTER CONDITIONS - OPERATING YEAR 2
I-4	FLOW DIAGRAM, AVERAGE SUMMER CONDITIONS - OPERATING YEAR 2
I-5	FLOW DIAGRAM, AVERAGE WINTER CONDITIONS - OPERATING YEAR 3
I-6	FLOW DIAGRAM, AVERAGE SUMMER CONDITIONS - OPERATING YEAR 3
I-7	FLOW DIAGRAM, AVERAGE WINTER CONDITIONS - OPERATING YEAR 4
I-8	FLOW DIAGRAM, AVERAGE SUMMER CONDITIONS - OPERATING YEAR 4
I-9	FLOW DIAGRAM, AVERAGE WINTER CONDITIONS - OPERATING YEAR 5
I-10	FLOW DIAGRAM, AVERAGE SUMMER CONDITIONS - OPERATING YEAR 5

DRAWING No. 0401-1000



TYPICAL 30,000 H.P. COMPRESSOR STATION
WITH GAS CHILLING

DRAWING No. 0402-1000

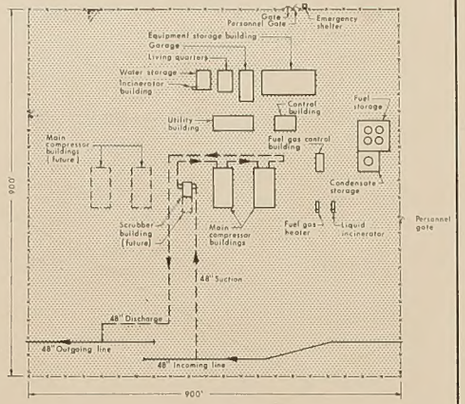


TYPICAL 30,000 H.P. COMPRESSOR STATION
WITHOUT GAS CHILLING

DRAWING No. 0403-1000

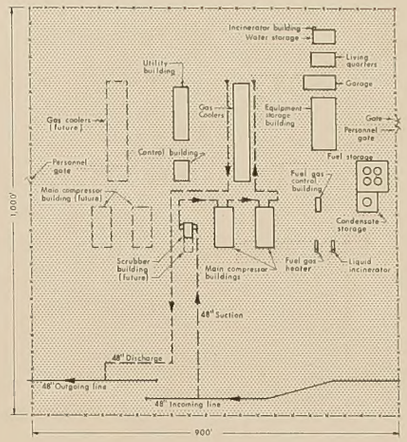
LEGEND

TYPICAL GRAVEL AREAS FOR 30,000 AND 55,000 H.P. COMPRESSOR STATION PLOT PLANS



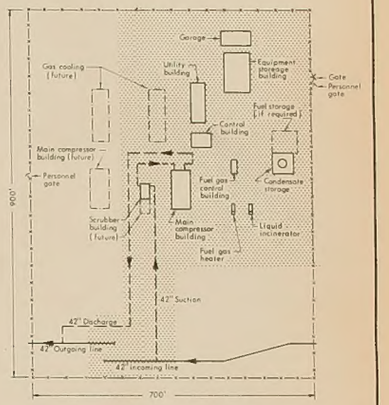
TYPICAL 55,000 H.P. COMPRESSOR STATION
WITHOUT GAS CHILLING

DRAWING No. 0404-1000

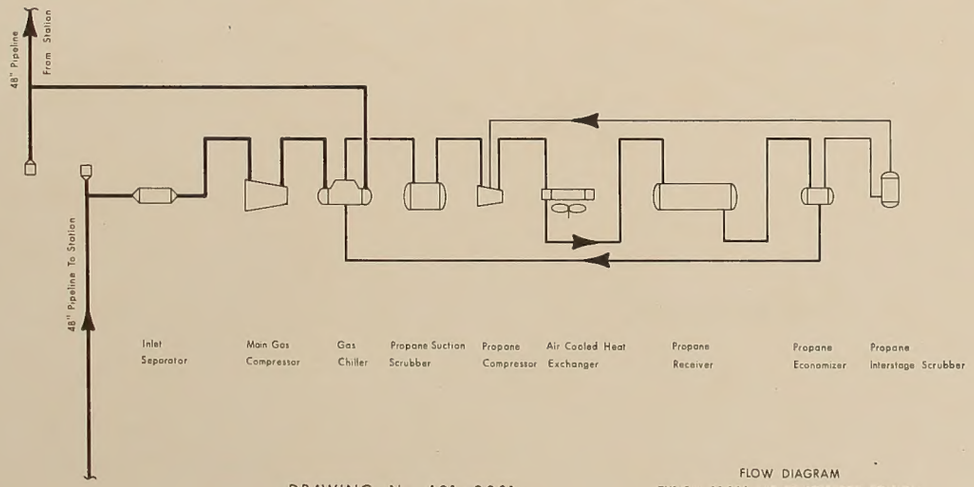


TYPICAL 55,000 H.P. COMPRESSOR STATION
WITH GAS COOLING

DRAWING No. 0405-1000

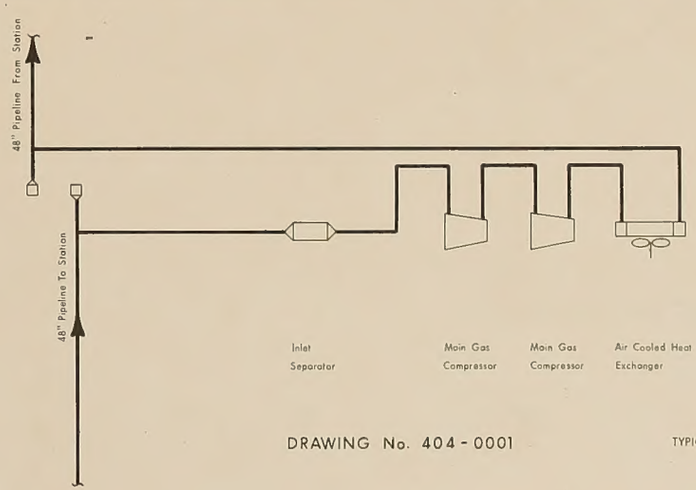


TYPICAL 30,000 H.P. COMPRESSOR STATION
WITH FUTURE GAS COOLING



DRAWING No. 401-0001

FLOW DIAGRAM
TYPICAL 30,000 H.P. COMPRESSOR STATION
WITH GAS CHILLING



Note: Typical drawings only, subject to change upon final design.

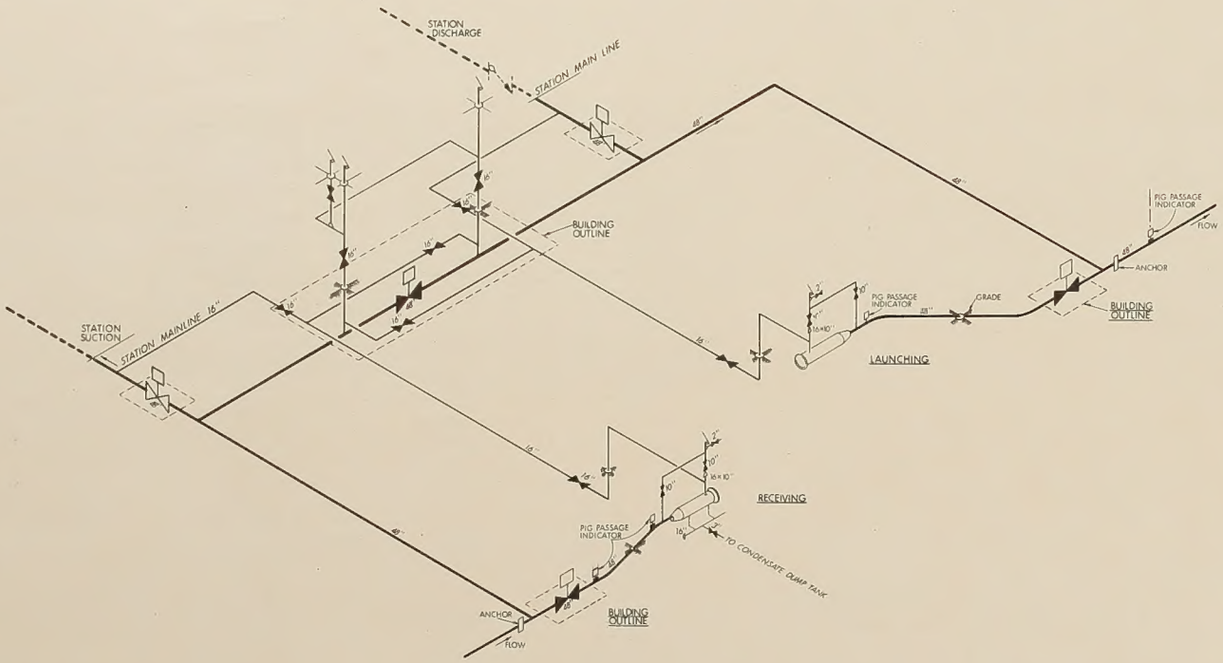
DRAWING No. 404-0001

FLOW DIAGRAM
TYPICAL 55,000 H.P. COMPRESSOR STATION
WITH GAS COOLING

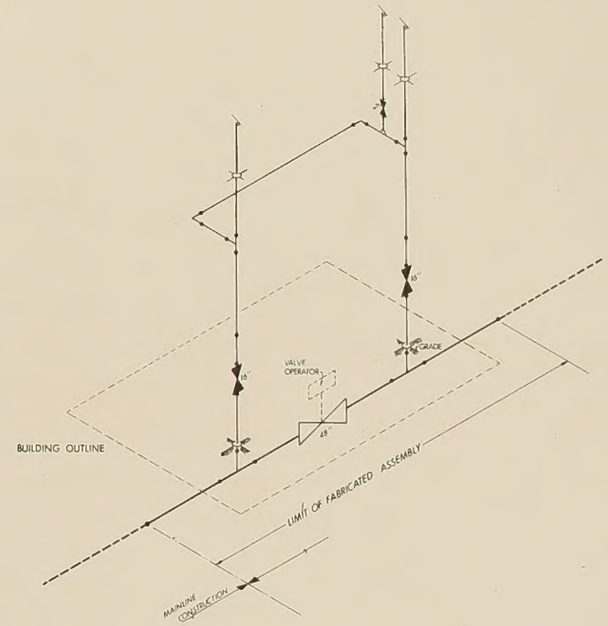
NORTHERN ENGINEERING SERVICES COMPANY LIMITED
CALGARY ALBERTA
ENGINEERS FOR
CANADIAN ARCTIC GAS PIPELINE LIMITED

TYPICAL COMPRESSOR STATION
CONFIGURATIONS

SCALE
DATE
PROJECT No.
SHEET A-1
REV.



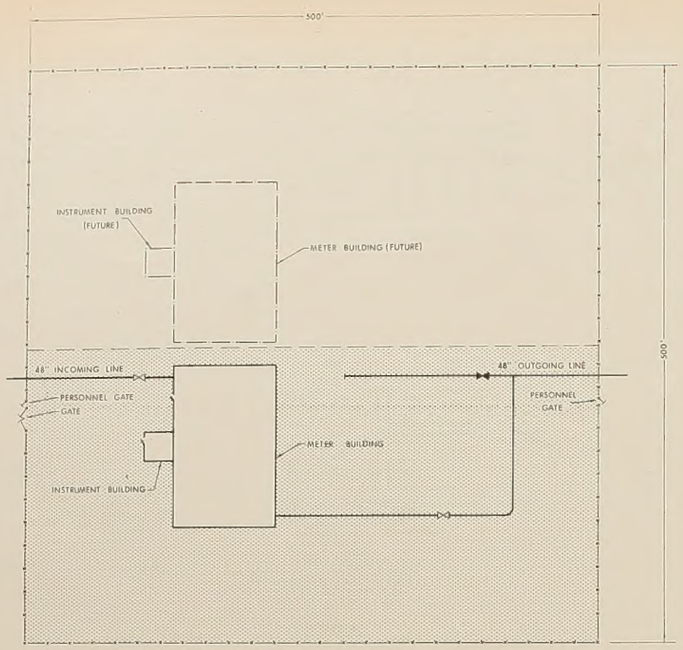
TYPICAL 48" SCRAPER TRAP ASSEMBLY
DRAWING No. 0300-6030



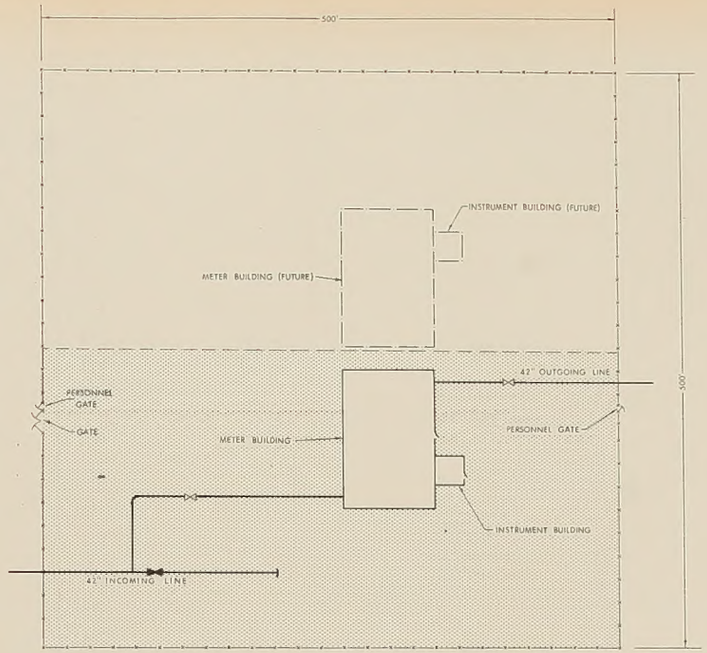
TYPICAL 48" MAINLINE BLOCK VALVE ASSEMBLY
DRAWING No. 0300-6000

NOTE:
TYPICAL DRAWINGS ONLY. SUBJECT TO CHANGE UPON FINAL DESIGN.

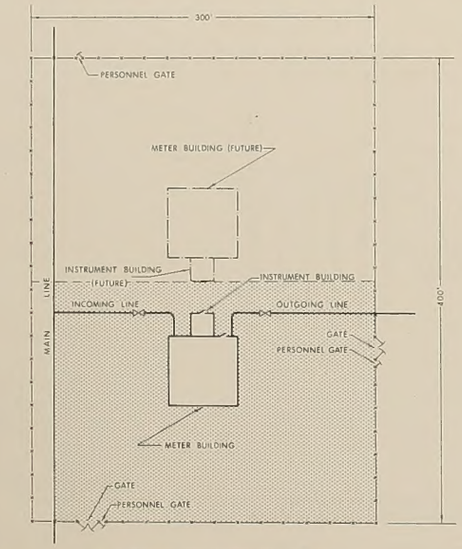
DESIGNED BY: C.M.R	NORTHERN ENGINEERING SERVICES COMPANY LIMITED, CALGARY ALBERTA, ENGINEERS FOR CANADIAN ARCTIC GAS PIPELINE LIMITED	
DRAWN BY:	MAINLINE BLOCK VALVE ASSEMBLY AND TYPICAL SCRAPER TRAP	SCALE
CHECKED BY:		DATE
ENGINEERS APPROVAL:		PROJECT No.
PROJECT MANAGER:		SHEET 8-1 REV.



TYPICAL 48" MEASUREMENT STATION
PLOT PLAN

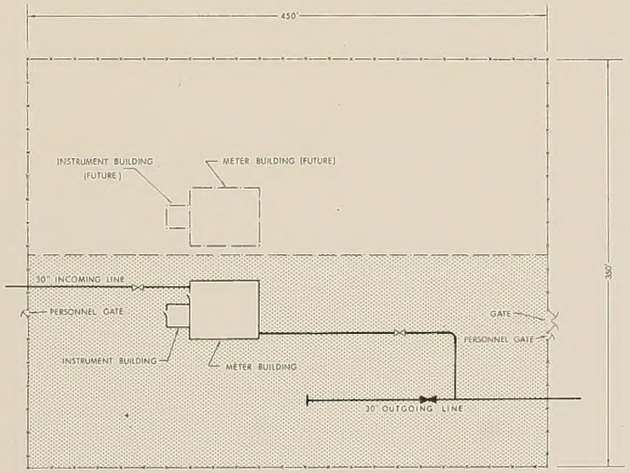


TYPICAL 42" MEASUREMENT STATION
PLOT PLAN



TYPICAL PIPELINE SALES MEASUREMENT STATION
PLOT PLAN

DRAWING No.
0700 - 1000



TYPICAL 30" MEASUREMENT STATION
PLOT PLAN

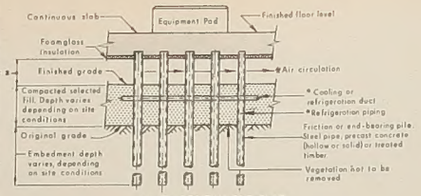
NOTE:
THESE PLOT PLANS ARE TYPICAL ONLY AND ARE SUBJECT TO REVISION UPON FINAL DESIGN.

NORTHERN ENGINEERING SERVICES COMPANY LIMITED
CALGARY ALBERTA
ENGINEERS FOR
CANADIAN ARCTIC GAS PIPELINE LIMITED

TYPICAL MEASUREMENT STATION
PLOT PLANS

SCALE 1" = 60'
DATE
PROJECT No.
SHEET C-1
REV

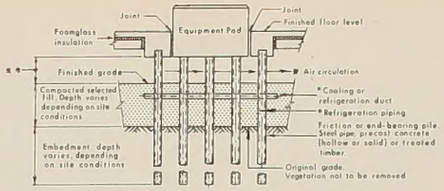
DRAWING No. 1-0500-3005



PILED CONTINUOUS SLAB

LIGHT TO HEAVILY LOADED STRUCTURES, HEATED STRUCTURES & STRUCTURES WITH LOW ALLOWABLE SETTLEMENTS.

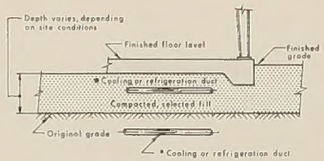
DETAIL A1



SEPARATE PILED FOOTINGS

LIGHT TO HEAVILY LOADED STRUCTURES, HEATED STRUCTURES & STRUCTURES WITH LOW ALLOWABLE SETTLEMENTS.

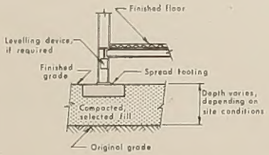
DETAIL A2



CONTINUOUS RAFT

STRUCTURES IN LOW TEMPERATURE PERMAFROST AREAS

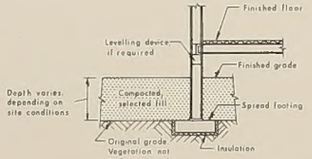
DETAIL A3



SPREAD FOOTING

LIGHTLY LOADED STRUCTURES, UNHEATED STRUCTURES & STRUCTURES WITH MINIMAL HEAT SUPPLY IN LOW TEMPERATURE CONTINUOUS PERMAFROST AREAS

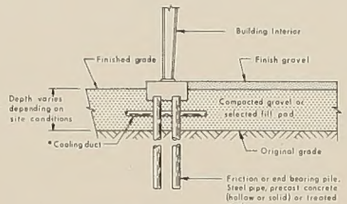
DETAIL A4



SPREAD FOOTING

LIGHTLY LOADED STRUCTURES, UNHEATED STRUCTURES & STRUCTURES WITH MINIMAL HEAT SUPPLY IN LOW TEMPERATURE CONTINUOUS PERMAFROST AREAS. (OFF-SITE FACILITIES)

DETAIL A5



STRUCTURES WITH GRAVEL FLOOR

MINIMAL HEAT SUPPLY IN LOW TEMPERATURE CONTINUOUS PERMAFROST AREAS.

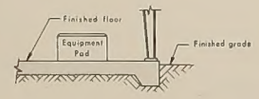
DETAIL A6

A-FOUNDATIONS IN PERMAFROST SOILS WITH HIGH THAW-SETTLEMENT POTENTIAL

NOTE

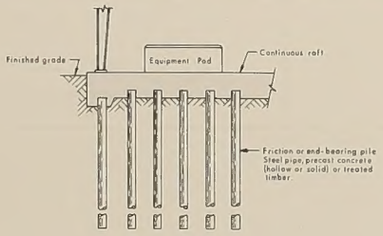
* AS REQUIRED

** AIR SPACE WILL BE OMITTED FOR UNHEATED STRUCTURES IN LOW TEMPERATURE CONTINUOUS PERMAFROST AREAS.



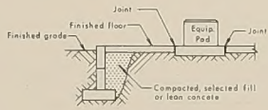
CONTINUOUS RAFT

DETAIL B1



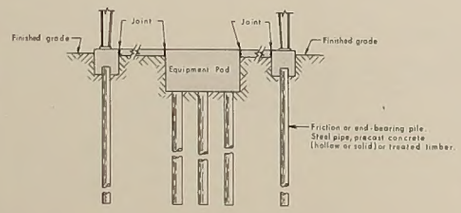
PILED RAFT

DETAIL B3



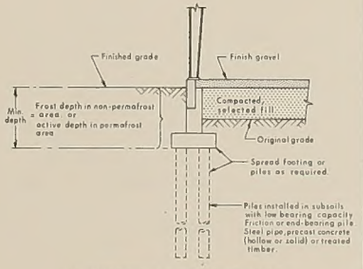
SPREAD FOOTING

DETAIL B2



SEPARATE PILED FOOTINGS

DETAIL B4



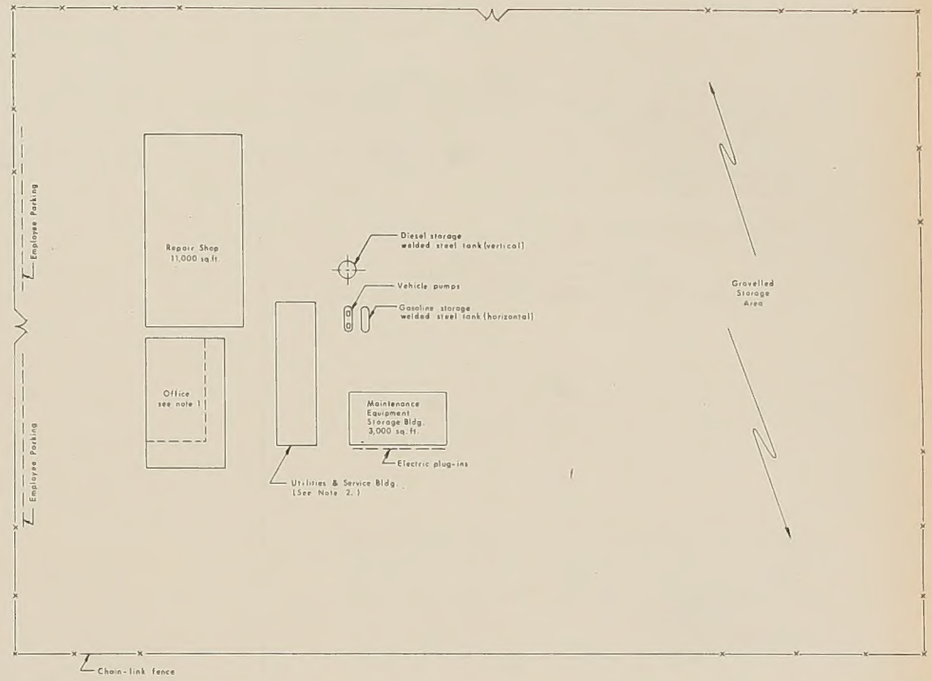
STRUCTURES WITH GRAVEL FLOOR

DETAIL B5

B-FOUNDATIONS IN NON-PERMAFROST SOILS & PERMAFROST SOILS WITH INSIGNIFICANT THAW-SETTLEMENT POTENTIAL

TYPICAL DETAILS OF PIPELINE EQUIPMENT & BUILDING FOUNDATIONS

DRAWING No. 1-0500-3005



NOTES

1 DIVISION-DISTRICT OFFICE BUILDING WILL BE APPROXIMATELY 6000 SQ. FT. IN AREA. DISTRICT OFFICE BUILDING WILL HAVE AN AREA OF APPROXIMATELY 3,500 SQ. FT. (SHOWN DOTTED) MAINTENANCE UNITS WILL NOT HAVE SEPARATE OFFICE BUILDINGS.

2 WHERE WASTE TREATMENT, WATER SUPPLY AND ELECTRIC SERVICES ARE NOT AVAILABLE FROM THE LOCAL EXISTING COMMUNITY, A UTILITIES AND SERVICE BUILDING WILL BE INSTALLED. THIS BUILDING WILL HAVE AN AREA OF APPROXIMATELY 2,500 SQ. FT., IF ALL SERVICES ARE TO BE INSTALLED.

3 DIVISION-DISTRICT HEADQUARTER WILL HAVE AN AREA OF APPROXIMATELY 8 ACRES.

TYPICAL DIVISION-DISTRICT HEADQUARTERS & MAINTENANCE UNIT PLOT PLAN

DRAWING No. 1-0500-3002

NORTHERN ENGINEERING SERVICES COMPANY LIMITED
CALGARY ALBERTA
ENGINEERS FOR
CANADIAN ARCTIC GAS PIPELINE LIMITED

TYPICAL DETAILS OF EQUIPMENT & BUILDING FOUNDATIONS

TYPICAL DIVISION-DISTRICT HEADQUARTERS & MAINTENANCE UNIT PLOT PLAN

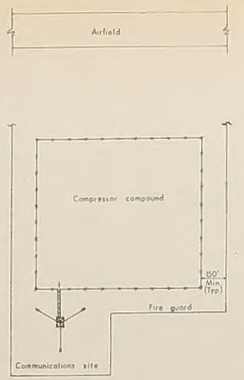
SCALE

DATE

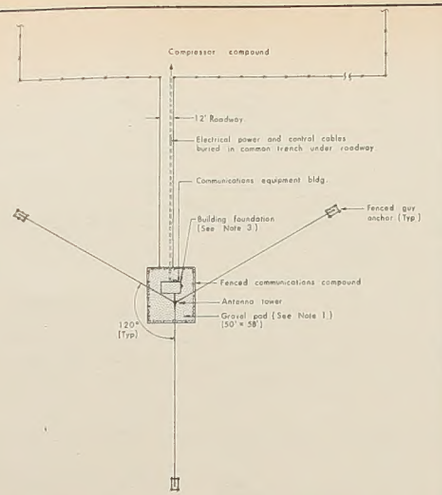
PROJECT No.

SHEET D-1

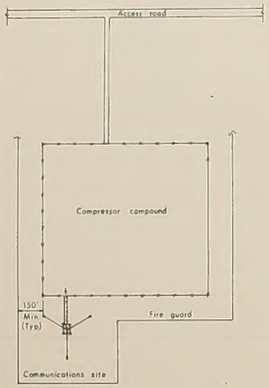
REV.



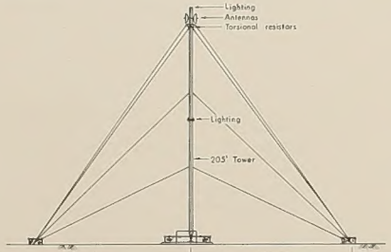
PLOT PLAN - NORTH OF 60th PARALLEL



COMMUNICATIONS SITE PLAN



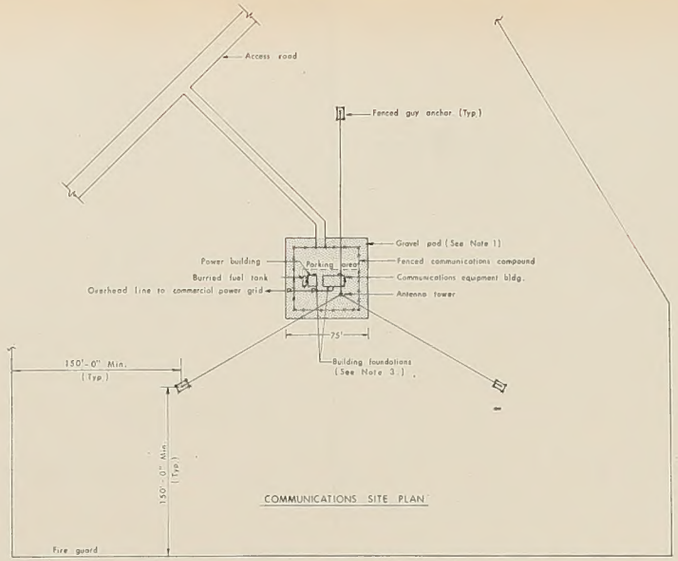
PLOT PLAN - SOUTH OF 60th PARALLEL



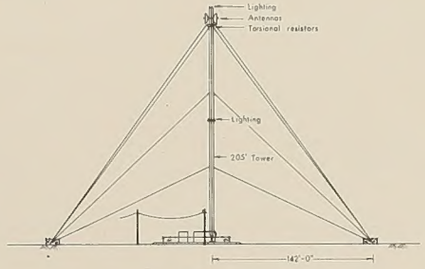
ELEVATION

DRAWING No. 4-0800-7026

COMMUNICATIONS SITE AT A COMPRESSOR STATION



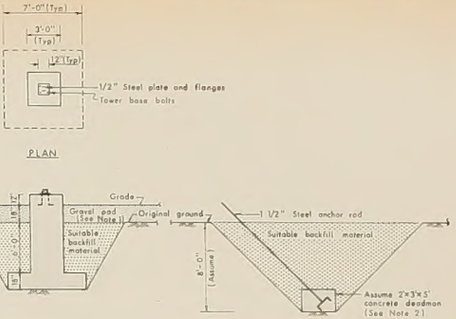
COMMUNICATIONS SITE PLAN



ELEVATION

INTERMEDIATE REPEATER SITE SOUTH OF 60th PARALLEL

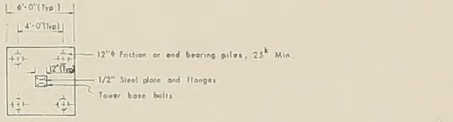
DRAWING No. 2-0800-7024



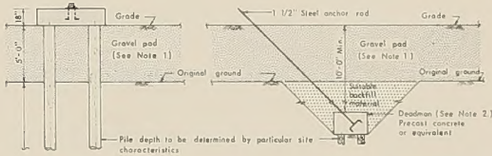
PLAN

ELEVATION SECTION THROUGH GUY ANCHOR (TYP.)

TYPICAL BASE AND ANCHOR DETAILS IN PERMAFROST REGIONS WITH INSIGNIFICANT THAW - SETTLEMENT POTENTIAL AND IN NON-PERMAFROST REGIONS WITH HIGH BEARING CAPACITY SOIL



PLAN



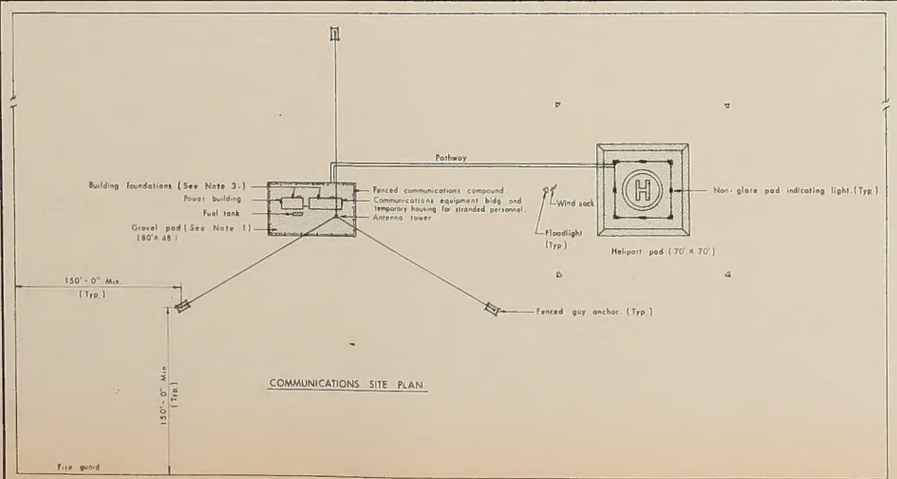
ELEVATION SECTION THROUGH GUY ANCHOR (TYP.)

TYPICAL BASE AND ANCHOR DETAILS IN PERMAFROST REGIONS WITH HIGH THAW - SETTLEMENT POTENTIAL AND IN NON - PERMAFROST REGIONS WITH LOW BEARING CAPACITY SOIL

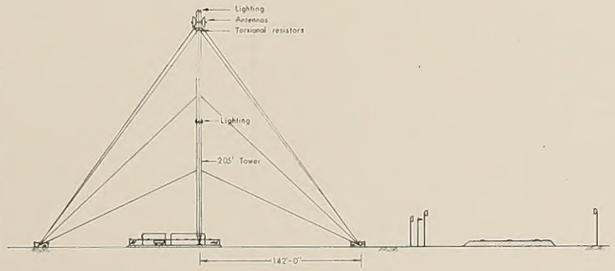
NOTES

1. 5'-0" GRAVEL PADS ARE REQUIRED AS INDICATED FOR UNSTABLE SOIL CONDITIONS; OTHERWISE AN 18" PAD IS REQUIRED FOR THE COMMUNICATIONS COMPOUND ONLY.
2. ROCK ANCHORS SHALL BE USED WHERE POSIBLE INSTEAD OF CONCRETE AS SHOWN.
3. — IN PERMAFROST REGIONS WITH HIGH THAW - SETTLEMENT POTENTIAL BUILDINGS WILL BE ERECTED ON CONCRETE SLABS SUPPORTED 12" ABOVE THE GRAVEL PAD ON PILES. IN NON-PERMAFROST REGIONS WITH LOW BEARING CAPACITY SOIL NO AIR SPACE IS REQUIRED.
— IN PERMAFROST REGIONS WITH INSIGNIFICANT THAW - SETTLEMENT POTENTIAL AND IN NON-PERMAFROST REGIONS WITH HIGH BEARING CAPACITY SOIL NO PILES WILL BE REQUIRED.

* 4. ABOVE DETAILS ARE TYPICAL FOR DRAWING Nos.: 2-0800-7024
1-0800-7025
4-0800-7026.



COMMUNICATIONS SITE PLAN



ELEVATION

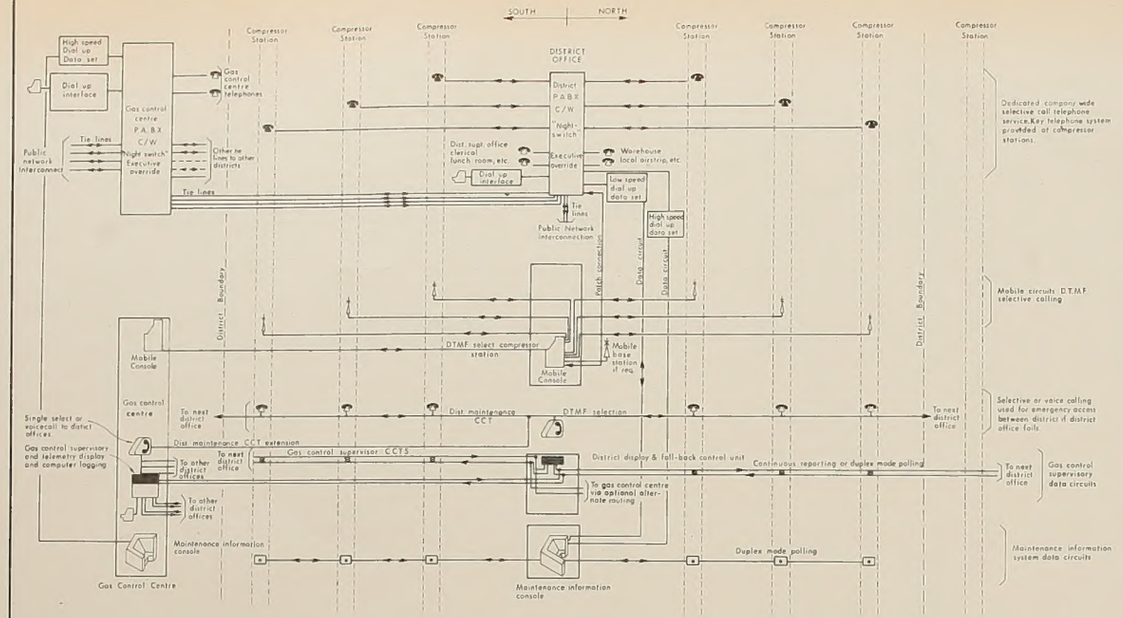
INTERMEDIATE REPEATER SITE NORTH OF 60th PARALLEL

DRAWING No. 1-0800-7025

NORTHERN ENGINEERING SERVICES COMPANY LIMITED
CALGARY ALBERTA
ENGINEERS FOR
CANADIAN ARCTIC GAS PIPELINE LIMITED

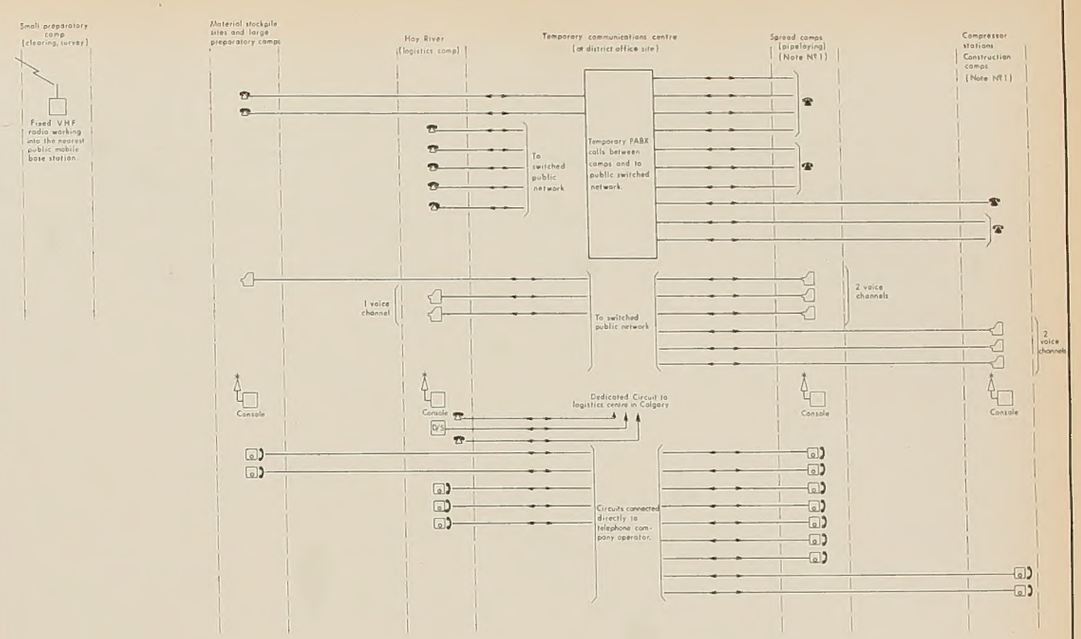
PLOT PLAN AND ELEVATION DETAILS FOR TYPICAL TERRESTRIAL MICROWAVE COMMUNICATION SITES

SCALE
DATE
PROJECT No.
SHEET E-1
REV



BASIC CIRCUIT CONFIGURATIONS
FOR OPERATING THE PIPELINE

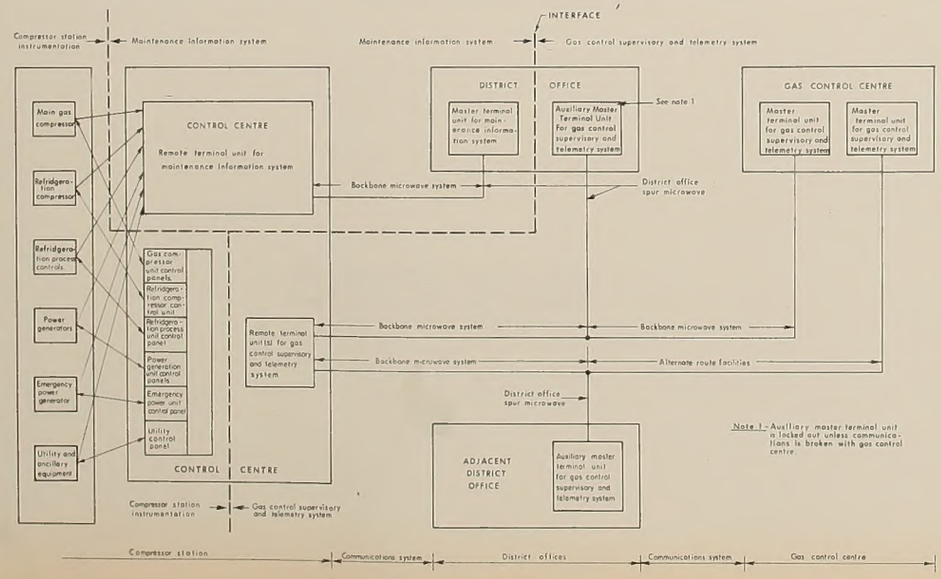
DRAWING No.
4-0800-7017



Note Nº1 - Two key telephone systems with 10 lines each provide access to public switched network and provide services within the camp.

TYPICAL CONSTRUCTION
CIRCUIT CONFIGURATIONS

DRAWING No.
4-0800-7010



CONTROL AND SURVEILLANCE SYSTEMS DRAWING No. 4-0851-7003

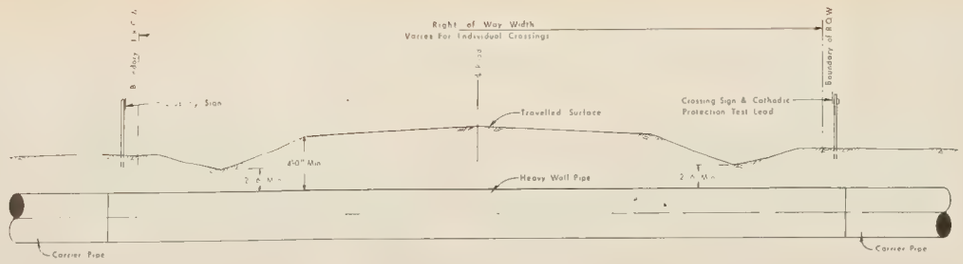
LEGEND

- M.L.S. R.T.U.
- Teleprinter terminal
- Mobile base station
- Telephone set
- Speaker phone
- G.C.S. R.T.U.
- Key Telephone system
- Pay phone
- Data set operating over a telephone voice circuit

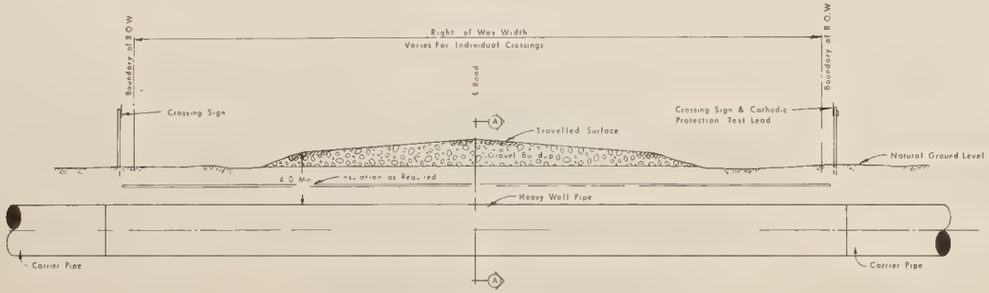
NORTHERN ENGINEERING SERVICES COMPANY LIMITED
CALGARY ALBERTA
ENGINEERS FOR
CANADIAN ARCTIC GAS PIPELINE LIMITED

PIPELINE COMMUNICATIONS
AND CONTROL REQUIREMENTS

SCALE
DATE
PROJECT No.
SHEET E-2
REV.



CROSSING IN NON PERMAFROST ZONE

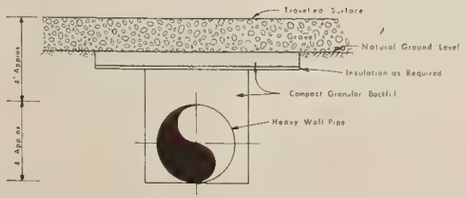


CROSSING IN DETRIMENTAL PERMAFROST ZONE

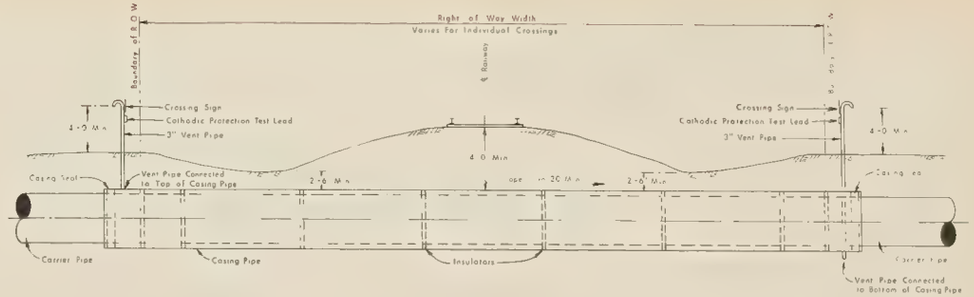
TYPICAL PIPE SIZES

CARRIER PIPE	HEAVY WALL PIPE
48" O.D. x 0.720" wt	48" O.D. x 1.034" wt
42" O.D. x 0.630" wt.	42" O.D. x 0.905" wt

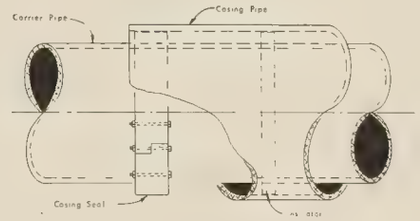
DRAWING No.
4-0100-0003



SECTION A-A



RAILWAY CROSSING



CASING SEAL DETAIL

DRAWING No.
4-0100-0002

TYPICAL PIPE SIZES

CARRIER PIPE	CASING PIPE
48" O.D. x 0.720" wt	52" O.D. x 0.625" wt
42" O.D. x 0.630" wt.	46" O.D. x 0.562" wt

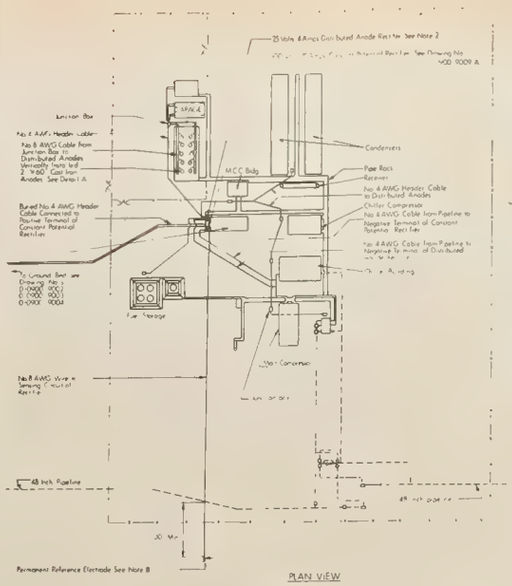
NOTE

TYPICAL DRAWINGS ONLY SUBJECT TO CHANGE UPON FINAL DESIGN

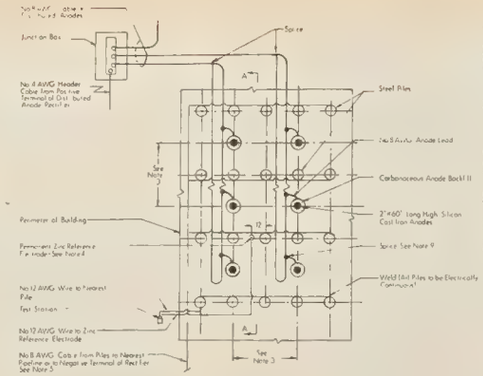
NORTHERN Engineering Services Company Limited
ENGINEERING SERVICES COMPANY LIMITED
CALGARY ALBERTA
ENGINEERS FOR
CANADIAN ARCTIC GAS PIPELINE LIMITED

TYPICAL
UNCASED ROAD CROSSINGS
AND
CASED RAILWAY CROSSING

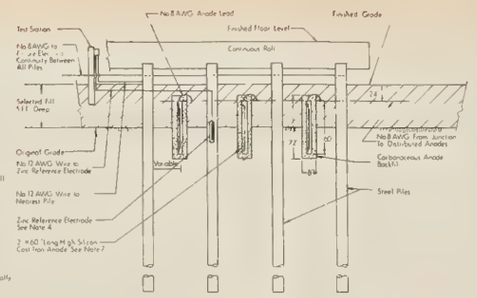
SCALE
DATE
PROJECT No.
SHEET F-1
REV



PLAN VIEW
NOT TO SCALE



DETAIL A
NOT TO SCALE
TYPICAL DISTRIBUTED ANODE INSTALLATION

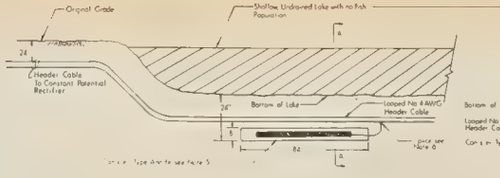


SECTION A-A

NOTES:

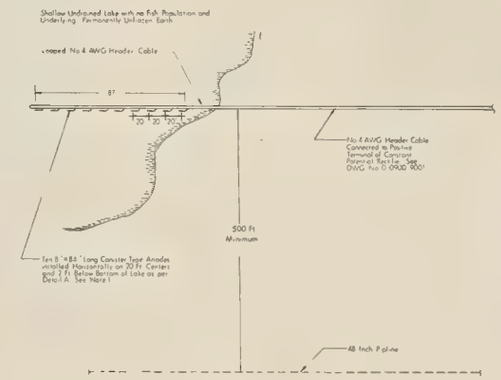
1) INSTALLATION BASED ON STATION FACILITIES AND PIPELINE, BEING IN PERMAFROST HAVING RESISTIVITY 10,000 OHMS-METER
2) INSTALLATION OF 35 VOLTS 4 AMPS RECTIFIER WITH DISTRIBUTED ANODES DEPENDENT UPON USE OF STEEL PILES IF MATERIALS OTHER THAN STEEL ARE USED THROUGHOUT STATION, THIS INSTALLATION WILL NOT BE REQUIRED
3) LOCATION OF DISTRIBUTED ANODES SHOWN FOR ILLUSTRATION PURPOSES ONLY. ACTUAL NUMBER AND SPACING OF ANODES REQUIRED FOR EACH BUILDING WILL BE DICTATED BY NUMBER AND SPACING OF STEEL PILES USED
4) ZINC REFERENCE ELECTRODE TO BE LOCATED APPROXIMATELY 12 CENTRE OF BUILDING 12 INCHES AWAY FROM STEEL PILE AND AS FAR AS POSSIBLE FROM DISTRIBUTED ANODES ELECTRODE TO BE PLACED VERTICALLY IN 8 INCH AUGER HOLE SATURATE EARTH BACKFILL AROUND PACKAGE WITH WATER
5) TO ENSURE ADEQUATE PROTECTION, ALL STEEL PIPES AT EACH BUILDING ARE TO BE ELECTRICALLY CONTINUOUS AND CONNECTED EITHER TO PIPELINE OR BY SEPARATE LEAD TO NEGATIVE TERMINAL OF DISTRIBUTED ANODE RECTIFIER
6) COMPRESSOR STATION SHOWN BASED ON TYPICAL 30 000 HP INSTALLATION WITH CHILLING
7) 3 x60 GRAPHITE ANODES MAY BE USED AS AN ALTERNATIVE TO 2 x60 ANODES SHOWN
8) PERMANENT REFERENCE ELECTRODE TO BE LOCATED ON THAT SIDE OF PIPELINE AWAY FROM GROUND BED UNLESS GROUND BED IS MORE THAN 700 FEET REMOTE FROM NEAREST UNDERGROUND STRUCTURE. REFERENCE ELECTRODE TO BE 100 FEET FROM NEAREST UNDERGROUND STRUCTURE
9) SPLICE SHOULD BE POURED RESIN INSULATION OVER CRIMPED CONNECTION BETWEEN POSITIVE CABLE AND ANODE LEAD WIRE

TYPICAL CATHODIC PROTECTION
INSTALLATION AT COMPRESSOR STATION
DRAWING No.
0-0900-9001



DETAIL A

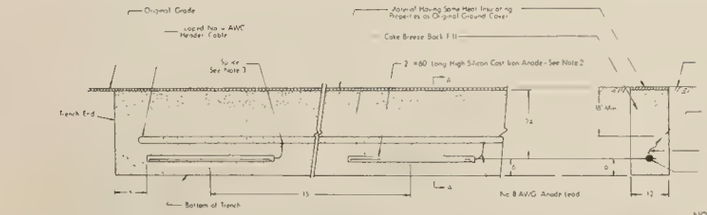
SECTION A-A



NOTES

1) INSTALLATION BASED ON STATION FACILITIES AND PIPELINE BEING IN PERMAFROST OF 10,000 OHM-METER RESISTIVITY AND ON REMOTE GROUND BED BEING IN NON-FROZEN EARTH OF 200 OHM-METER EFFECTIVE RESISTIVITY
2) WHERE BOTTOM IS DRY OR MUD, ANODES MAY BE BURIED BELOW SURFACE BY HYDRAULIC JET ANODES TO BE BACKFILLED AFTER PLACEMENT
3) WHERE BOTTOM IS TOO HARD FOR JETTING EXCAVATION AND BACKFILL OF ANODE TRENCH MAY BE BY BACKHOE DRAGLINE OR SIMILAR EQUIPMENT
4) WHERE LAKE IS NOT DEEP ENOUGH TO HAVE WATER UNDER ICE, BUT DOES HAVE UNFROZEN EARTH BELOW BOTTOM, ANODE DEPTH SHOULD BE GREAT ENOUGH TO ENSURE ANODE IS BEING IN PERMANENTLY UNFROZEN SOIL
5) 3 INCH DIAMETER BY 5 FT LONG IMPREGNATED GRAPHITE ANODE OR 2 INCH DIAMETER BY 5 FT LONG HIGH SILICON CAST IRON ANODE SO ONLY PACKED WITH LOW RESISTIVITY COKE BREEZE IN STEEL CANISTERS APPROXIMATELY 8 INCH DIAMETER BY 8 FT LONG
6) SPLICE SHOULD BE POURED RESIN INSULATION OVER CRIMPED CONNECTION BETWEEN POSITIVE CABLE AND ANODE LEAD WIRE

TYPICAL REMOTE GROUND BED IN
NON-FROZEN LAKE BOTTOM
DRAWING No.
0-0900-9003

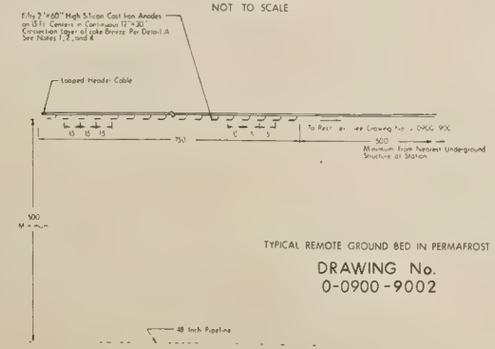


DETAIL A
NOT TO SCALE

SECTION A-A
NOT TO SCALE

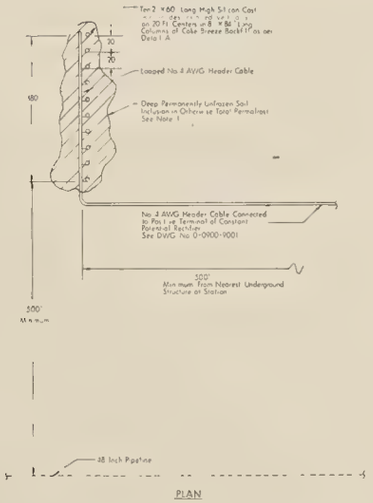
NOTES

1) INSTALLATION BASED ON STATION FACILITIES, PIPELINE AND REMOTE GROUND BED BEING IN PERMAFROST HAVING RESISTIVITY OF 10,000 OHM-METERS
2) 3"x60" GRAPHITE ANODES MAY BE USED AS AN ALTERNATIVE TO 2"x60" ANODES SHOWN
3) SPLICE SHOULD BE POURED RESIN INSULATION OVER CRIMPED CONNECTION BETWEEN POSITIVE CABLE AND ANODE LEAD WIRE
4) ANODE BED MAY BE HORIZONTAL TO PIPELINE AS SHOWN ON EITHER SIDE OF STATION. IF LEFT CLEAR, TYPE OF ONE END OF PIPELINE LOCATION IN EACH SPECIFIC CASE TO BE AS INDICATED ON DETAIL DESIGN 500 ft MINIMUM SPACING TO BE OBSERVED IN EACH CASE

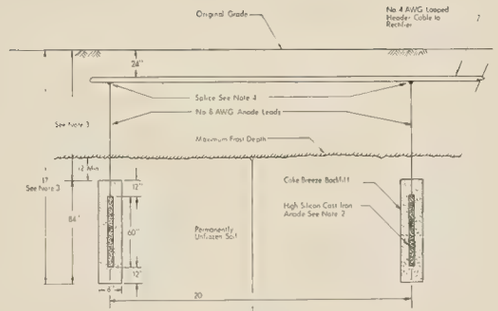


PLAN

TYPICAL REMOTE GROUND BED IN PERMAFROST
DRAWING No.
0-0900-9002



PLAN



DETAIL A

NOTES

1) INSTALLATION BASED ON STATION FACILITIES AND PIPELINE BEING IN PERMAFROST OF 10,000 OHM-METER RESISTIVITY AND ON REMOTE GROUND BED BEING IN NON-FROZEN EARTH OF 200 OHM-METER EFFECTIVE RESISTIVITY
2) 3"x60" GRAPHITE ANODES MAY BE USED AS AN ALTERNATIVE TO 2"x60" ANODES SHOWN
3) DEPTH OF ANODES MAY VARY AT DIFFERENT LOCATIONS OR IN HOLE TO A DEPTH SUCH THAT THE TOP OF THE ANODE BACKFILL IS 12 INCHES MINIMUM BELOW MAXIMUM FROST DEPTH
4) SPLICE SHOULD BE POURED RESIN INSULATION OVER CRIMPED CONNECTION BETWEEN POSITIVE CABLE AND ANODE LEAD WIRE

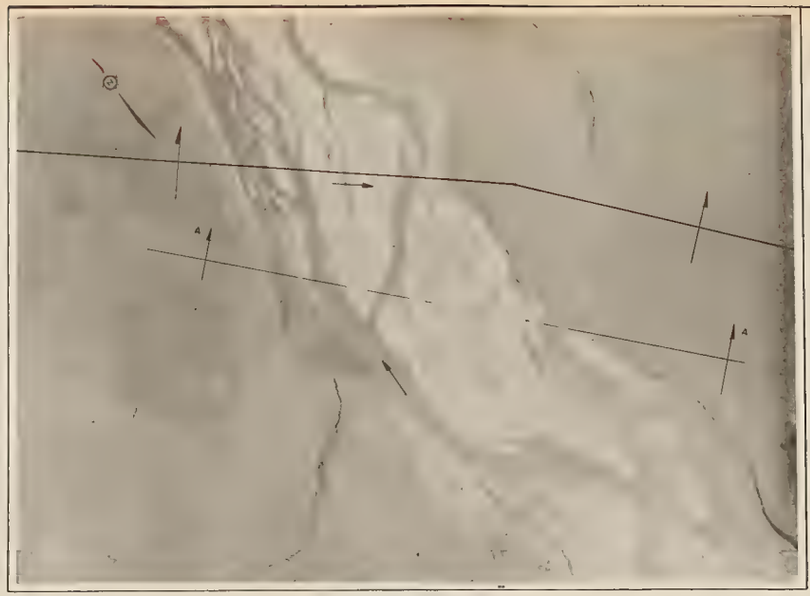
TYPICAL REMOTE GROUND BED
IN DEEP NON-FROZEN INCLUSION
IN PERMAFROST
DRAWING No.
0-0900-9004

NORTHERN ENGINEERING SERVICES COMPANY LIMITED
CALGARY ALBERTA
ENGINEERS FOR
CANADIAN ARCTIC GAS PIPELINE LIMITED

CATHODIC PROTECTION INSTALLATIONS
TYPICAL GROUND BEDS

SCALE
DATE
PROJECT No.
REV
SHEET G-1

SCALE - FEET
PLAN - FORM LINES



SCALE - FEET
PLAN - AERIAL PHOTOGRAPHY

FIRTH RIVER CROSSING
PLAN

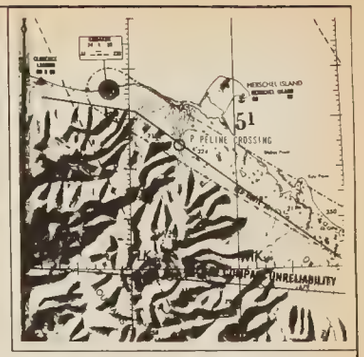
DRAWING No. 1C-0209-1001

LEGEND

PIPELINE LOCATION

PROFILE DIRECTION AND LIMITS

FLOW DIRECTION

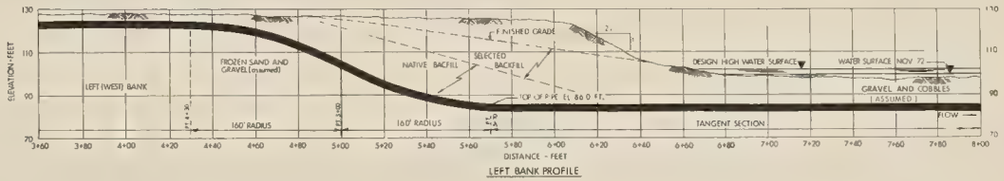


GENERAL NOTES

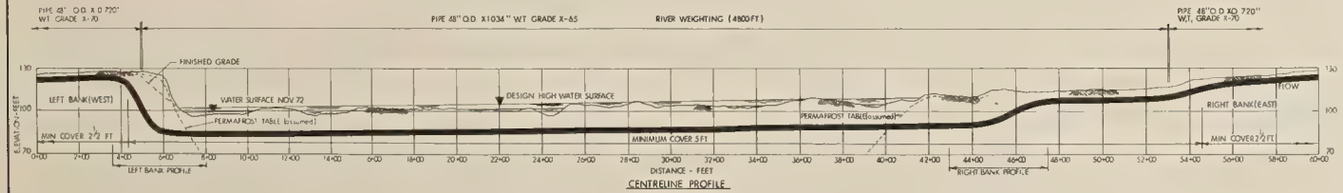
1. SCALES ARE APPROXIMATE THE FIVE FOOT CONTOUR INTERVALS SHOWN ARE FROM UNCONTROLLED FORM LINES PRODUCED FROM AIR PHOTOGRAPHY.
2. PIPE TO BE WEIGHTED TO PROVIDE 20% NEGATIVE BUOYANCY
3. DRAINAGE AND EROSION CONTROL MEASURES (INCLUDING REVEGETATION) ARE OUTLINED IN EXHIBIT B (b)(i) GEOTECHNICAL 3.8 TERRAIN STABILITY

SPECIFIC NOTES

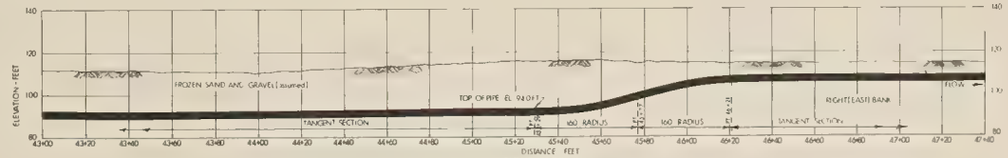
1. DRAINAGE AREA - 2,320 sq mls.
2. DESIGN DISCHARGE - 26,000 C F S
3. ORIGINAL CROSSING PROFILE AA SHOWN ON 1C-0210-1001
4. RIVER BED MATERIAL - SAND, GRAVEL & BOULDERS
5. BANK MATERIAL ASSUMED FROZEN SAND & GRAVEL
6. DITCH ACCROSS CHANNEL TO BE BACKFILLED TO ORIGINAL CONTOURS WITH NATIVE MATERIAL
7. MINOR LATERAL EROSION OF BANKS EVIDENT FROM AERIAL PHOTOGRAPHY
8. APPROXIMATE PIPELINE CROSSING LOCATION U.T.M. ZONE GRID 7, 7,700,000mN, 358,000mE
9. NATIONAL TOPOGRAPHIC SERIES, HERSCHEL ISLAND, YUKON TERRITORY, SHEET 117-D
10. PIPELINE CROSSING APPROXIMATELY 12 MILES SOUTH OF HERSCHEL ISLAND



LEFT BANK PROFILE



CENTRELINE PROFILE



RIGHT PROFILE

NOTES

1. PROFILE SHOWN IS APPROXIMATELY 1000 FEET UPSTREAM OF PROPOSED CROSSING
2. BACKFILL OF PIPE TRENCH ON VALLEY WALL SLOPES TO BE SELECTED MATERIALS
3. DATUM ELEVATION 100 FEET (ASSUMED) WATER LEVEL NOV 1972
4. SLOPES INDICATED ARE APPROXIMATE NATURAL SLOPES
5. DRAWINGS ARE BASED ON PRELIMINARY DESIGN AND ARE SUBJECT TO CHANGE
6. STATION 0+00 CORRESPONDS TO MP 233.76
7. WATER SURFACE HAS A GRADIENT ON THE PROFILES SHOWN BECAUSE CROSSING IS AT A SKEW TO THE FLOOD PLAIN

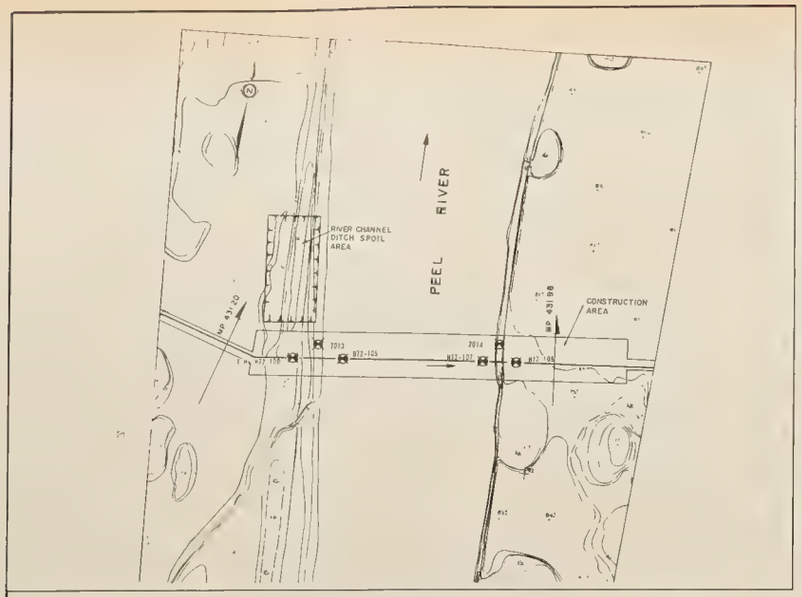
FIRTH RIVER CROSSING
PROFILE

DRAWING No. 1C-0210-1001

NORTHERN ENGINEERING SERVICES LIMITED
CALGARY ALBERTA
ENGINEERS FOR
CANADIAN ARCTIC GAS STUDY LTD.

FIRTH RIVER CROSSING
PROFILE AND PLAN VIEWS

SCALE
DATE
PROJECT No
DRAWING No
SECTION H-1
REV



600 0 600 1200
SCALE-FEET

PLAN – FORM LINES

600 0 600 1200
SCALE-FEET

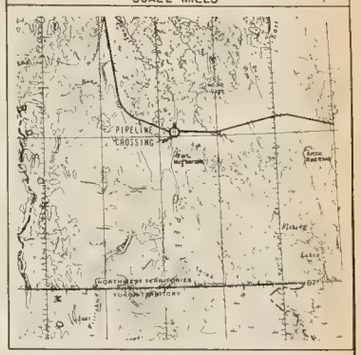
PLAN – AERIAL PHOTOGRAPHY

PEEL RIVER CROSSING
PLAN
DRAWING No. 1E-0209-1001

LEGEND

- TEST HOLE LOCATION
- PIPELINE LOCATION
- PROFILE DIRECTION AND LIMITS
- FLOW DIRECTION

KEY MAP
10 0 10 20 30 40
SCALE-MILES

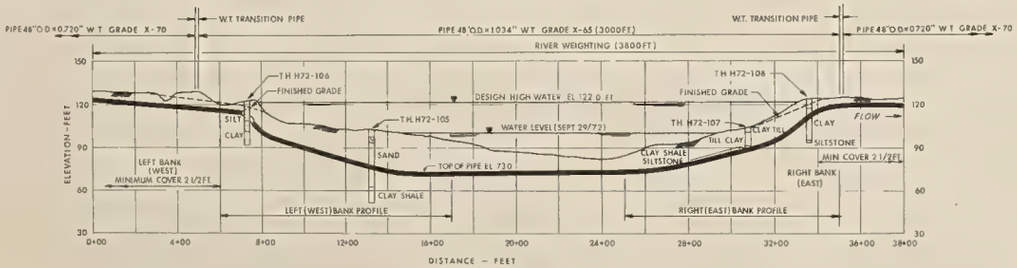


GENERAL NOTES

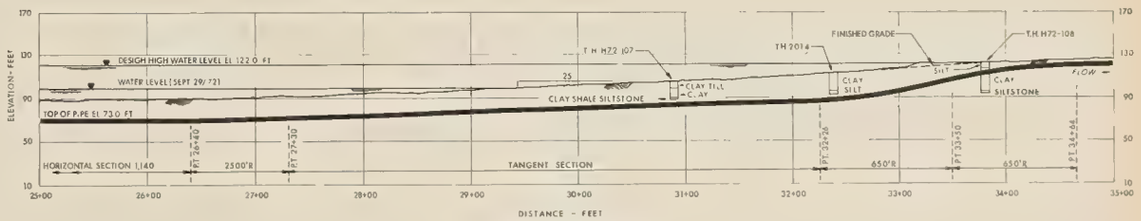
1. SCALES ARE APPROXIMATE. THE FIVE FOOT CONTOUR INTERVALS SHOWN ARE UNCONTROLLED FORM LINES PRODUCED FROM AIR PHOTOGRAPHY
2. DRAINAGE AND EROSION CONTROL MEASURES (INCLUDING REVEGETATION) ARE OUTLINED IN EXHIBIT B1(b)(i) GEOTECHNICAL 3.8 TERRAIN STABILITY
3. PIPE WILL BE WEIGHTED TO PROVIDE 20% NEGATIVE BUOYANCY

SPECIFIC NOTES

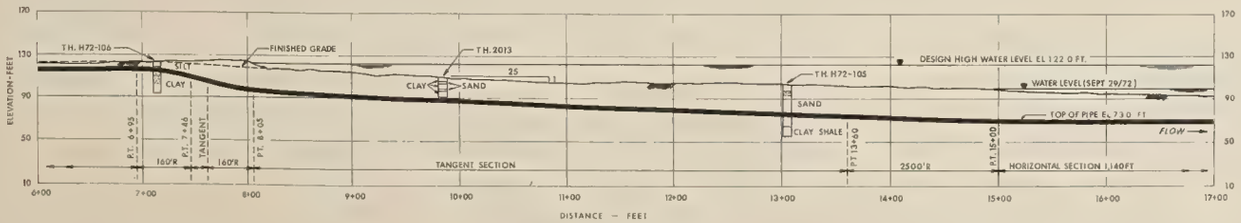
1. ESTIMATED DESIGN FLOOD DISCHARGE - 300,000 C.F.S
2. ESTIMATED AVERAGE FLOOD DEPTH - 20 FT
3. BED MATERIAL: FINE SAND WITH COBBLE PAVING OVERLYING SHALE BEDROCK
4. SOME EVIDENCE OF RIGHT BANK EROSION OVER PAST 22 YEARS
5. APPROXIMATE PIPELINE CROSSING LOCATION U.T.M. GRID ZONE 8 7,488,000 mN, 505,000 mE
6. NATIONAL TOPOGRAPHIC SERIES, FORT MCPHERSON, SHEET 106M
7. APPROXIMATELY 5 MILES NORTH OF FORT MCPHERSON, N.W.T., DISTRICT OF MACKENZIE
8. RIVER CHANNEL DITCH TO BE BACKFILLED WITH ORIGINAL BED MATERIAL STOCKPILED IN SPOIL AREA



CENTRELINE PROFILE



RIGHT (EAST) BANK PROFILE



LEFT (WEST) BANK PROFILE

NOTES

1. BACKFILL OF PIPE TRENCH ON VALLEY WALL SLOPE TO BE NATIVE MATERIAL
2. DATUM ELEVATION 100.0FT WATER LEVEL SEPT 29/72
3. SLOPES INDICATED ARE APPROXIMATE NATURAL SLOPES
4. DRAWINGS ARE BASED ON PRELIMINARY DESIGN WHICH ARE SUBJECT TO CHANGE
5. CHAINAGE 0+00 CORRESPONDS TO M.P 431.20

LEGEND

FROZEN

PEEL RIVER CROSSING
PROFILE
DRAWING No. 1E-0210-1001

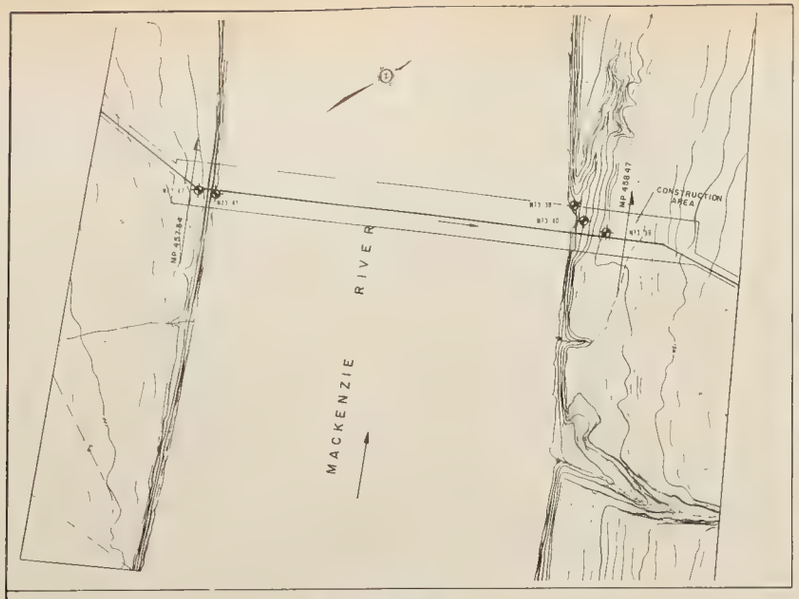
NORTHERN ENGINEERING SERVICES LIMITED
CALGARY ALBERTA
ENGINEERS FOR
CANADIAN ARCTIC GAS STUDY LTD.

PEEL RIVER CROSSING

PROFILE AND PLAN VIEWS

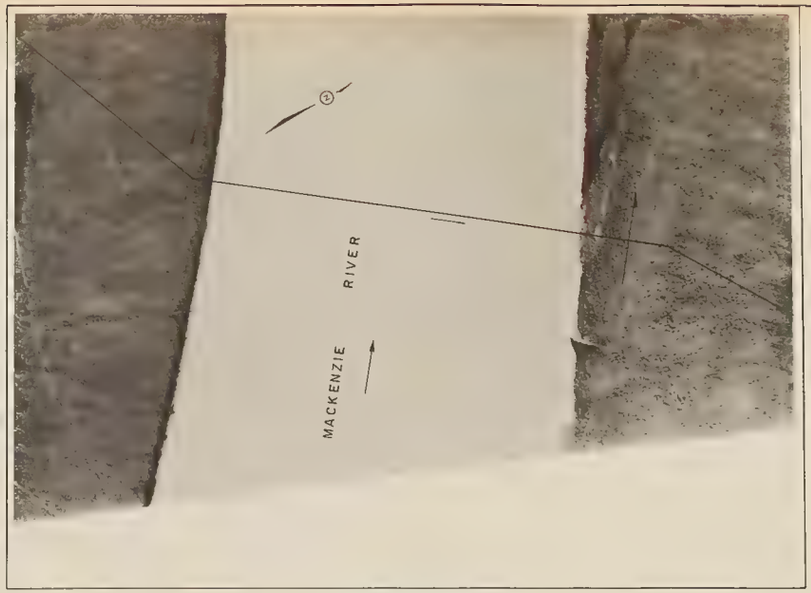
SCALE
DATE
PROJECT No
REV

SECTION H-2



SCALE - FEET

PLAN - FORM LINES



SCALE - FEET

PLAN - AERIAL PHOTOGRAPHY

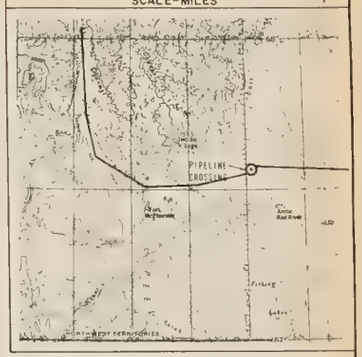
MACKENZIE RIVER CROSSING
PLAN
DRAWING No. 1E-0209-1003

LEGEND

- TEST HOLE LOCATION
- PIPELINE LOCATION
- PROFILE DIRECTION AND LIMITS
- FLOW DIRECTION

KEY MAP

SCALE - MILES

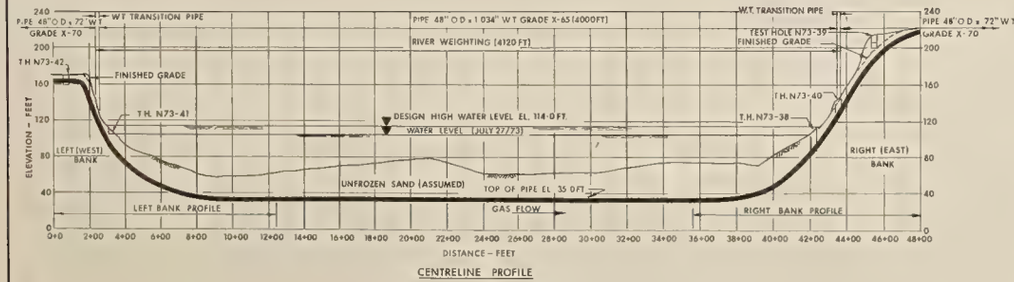


GENERAL NOTES

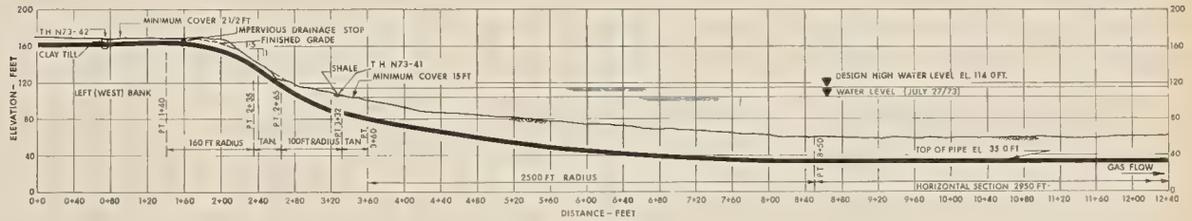
1. SCALES ARE APPROXIMATE THE FIVE FOOT CONTOUR INTERVALS SHOWN ARE UNCONTROLLED FORM LINES PRODUCED FROM AIR PHOTOGRAPHY.
2. PIPE TO BE WEIGHTED TO PROVIDE 20% NEGATIVE BOUYANCY
3. DRAINAGE AND EROSION CONTROL MEASURES (INCLUDING REVEGETATION) ARE OUTLINED IN EXHIBIT B (b) (i) GEOTECHNICAL 3 B TERRAIN STABILITY

SPECIFIC NOTES

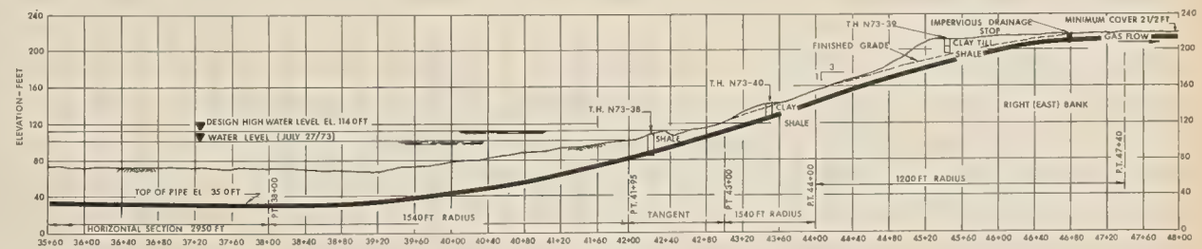
1. DESIGN DISCHARGE 1 300 000 C.F.S
2. DESIGN DISCHARGE COMPUTED MEAN DEPTH - 38 FT
3. CHANNEL BED MATERIAL APPEARS TO BE SAND WITH COBBLE PAVING
4. SHALE OUTCROPS AT BEACH LEVEL ON EACH BANK.
5. LACK OF NOTICEABLE LATERAL EROSION OVER 20 YEAR PERIOD SUGGESTS CHANNEL BANKS AT THE CROSSING ARE STABLE WITH REGARD TO LATERAL MIGRATION
6. RIVER CHANNEL DITCH SPOIL TO BE CAST DOWN STREAM
7. APPROXIMATE PIPELINE CROSSING LOCATION Y.T.M. GRID ZONE 8 7 492 000 mN 548 000 mE.
8. NATIONAL TOPOGRAPHIC SERIES ARCTIC RED RIVER 106N
9. APPROXIMATELY 8 MILES NORTH WEST OF ARCTIC RED RIVER N.W.T DISTRICT OF MACKENZIE



CENTRELINE PROFILE



LEFT BANK PROFILE



RIGHT BANK PROFILE

NOTES:

1. BACKFILL OF PIPE TRENCH ON VALLEY WALL SLOPES TO BE SELECTED MATERIAL.
2. DATUM ELEVATION 104 FT - WATER LEVEL JULY 27, 1973.
3. SLOPES INDICATED ARE APPROXIMATE NATURAL SLOPES
4. DRAWINGS ARE BASED ON PRELIMARY DESIGN INFORMATION AND SUBJECT TO CHANGE.
5. CHAINAGE 0+00 CORRESPONDS TO M.P. 457.54.

LEGEND

- FROZEN

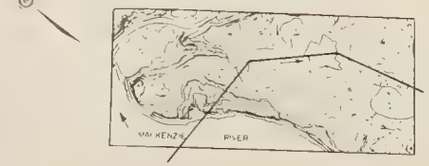
MACKENZIE RIVER CROSSING
PROFILE
DRAWING No. 1E-0210-1003

NORTHERN ENGINEERING SERVICES COMPANY LIMITED
CALGARY ALBERTA
ENGINEERS FOR
CANADIAN ARCTIC GAS PIPELINE LIMITED

MACKENZIE RIVER CROSSING
(POINT SEPARATION)
PROFILE AND PLAN VIEWS

SCALE
DATE
PROJECT No

SECTION H-3



SCALE - FEET

PLAN - FORM LINES

SCALE - FEET

PLAN - AERIAL PHOTOGRAPHY

MACKENZIE RIVER CROSSING
PLAN
DRAWING No. 1A-0209-1001

LEGEND

- TEST HOLE LOCATION
- PIPELINE LOCATION
- PROFILE DIRECTION AND LIMITS
- FLOW DIRECTION

KEY MAP

SCALE - MILES

GENERAL NOTES

1. SCALES ARE APPROXIMATE THE FIVE FOOT CONTOUR INTERVALS SHOWN ARE UNCONTROLLED FORM LINES PRODUCED FROM AIR PHOTOGRAPHY
2. PIPE TO BE WEIGHTED TO PROVIDE 20% NEGATIVE BOUYANCY
3. DRAINAGE AND EROSION CONTROL MEASURES (INCLUDING REVEGETATION) ARE OUTLINED IN EXHIBIT B (b)(.) GEOTECHNICAL 3 B

SPECIFIC NOTES

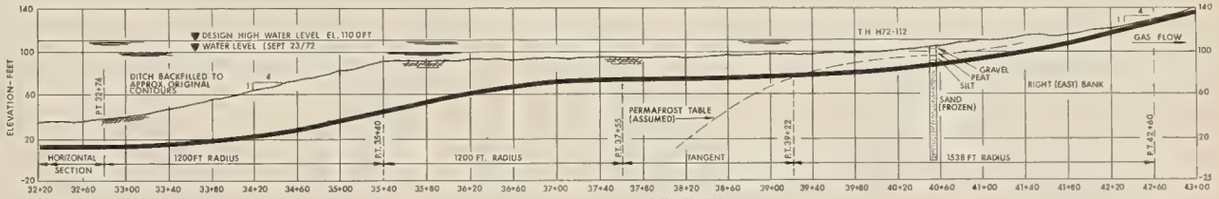
1. ESTIMATED DESIGN FLOOD DISCHARGE - NOT KNOWN
2. PIPELINE LOCATED TO MINIMIZE ADDITIONAL SCOUR MINIMIZE EXCAVATION AND AVOID HIGH LEVEL BY PASS CHANNELS ON LEFT BANK.
3. BANK MATERIAL - PREDOMINANTLY FROZEN SAND
4. APPROXIMATE PIPELINE CROSSING LOCATION U.T.M. GRID ZONE 8 7 667 000 mN 525 000 mE
5. NATIONAL TOPOGRAPHIC SERIES, MACKENZIE DELTA 107C
6. APPROXIMATELY 62 MILES NORTH OF INUVIK N.W.T. DISTRICT OF MACKENZIE.
7. DITCH ACROSS CHANNEL TO BE BACKFILLED WITH ORIGINAL MATERIAL FROM SPOIL AREA

NOTES:

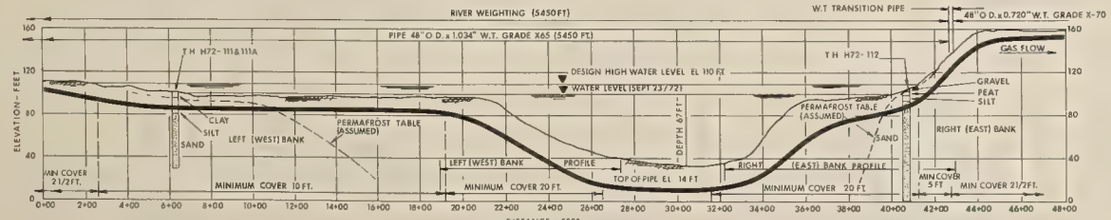
1. BACKFILL OF PIPE TRENCH ON VALLEY WALL SLOPES TO BE SELECTED MATERIAL
2. DATUM ELEVATION 100 FT - WATER LEVEL SEPT 23, 1972
3. SLOPES INDICATED ARE APPROXIMATE NATURAL SLOPES
4. DRAWINGS ARE BASED ON PRELIMARY DESIGN INFORMATION AND SUBJECT TO CHANGE.
5. CHAINAGE 0+00 CORRESPONDS TO M.P. 23.57

LEGEND:

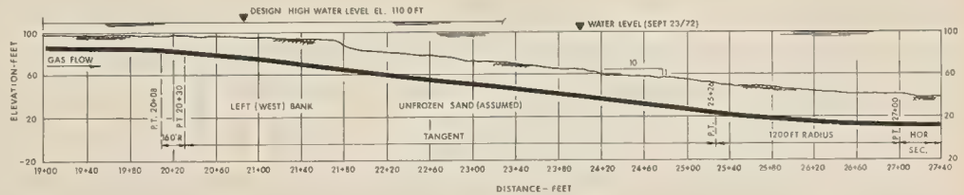
FROZEN



RIGHT BANK PROFILE



CENTRELINE PROFILE



LEFT BANK PROFILE

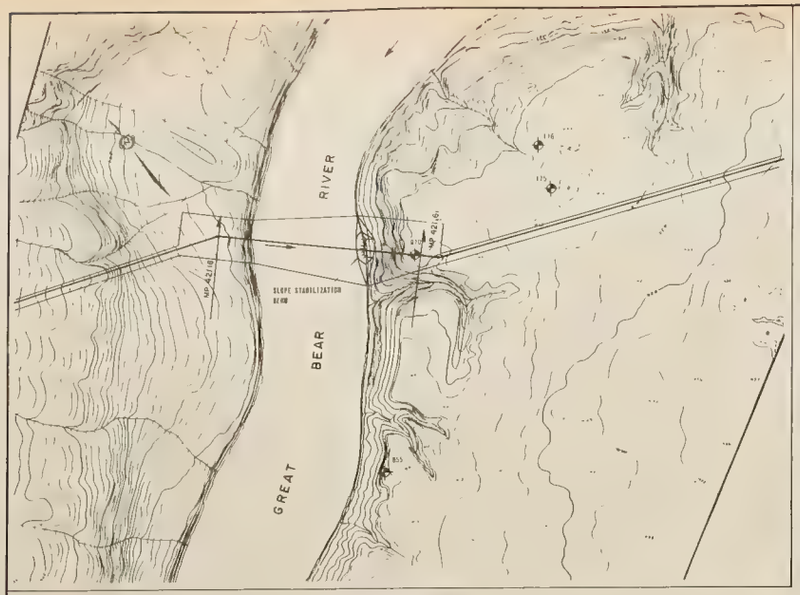
MACKENZIE RIVER CROSSING
PROFILE
DRAWING No. 1A-0210-1001

NORTHERN ENGINEERING SERVICES LIMITED
CALGARY ALBERTA
ENGINEERS FOR
CANADIAN ARCTIC GAS STUDY LTD.

MACKENZIE RIVER CROSSING
(SWIMMING POINT)
PROFILE AND PLAN VIEWS

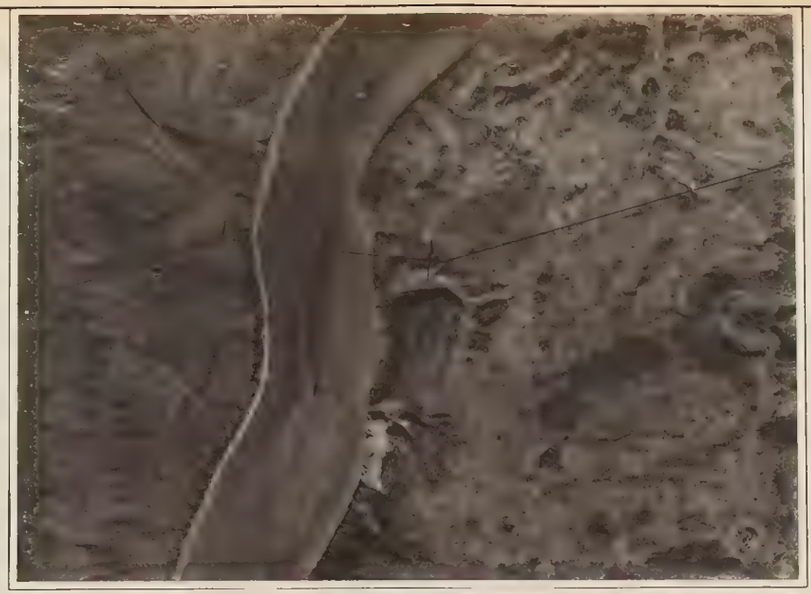
SCALE
DATE
PROJECT No

SECTION H - 4



SCALE - FEET

PLAN - FORM LINES



SCALE - FEET

PLAN - AERIAL PHOTOGRAPHY

GREAT BEAR RIVER CROSSING
PLAN

DRAWING No. 1B-0209-1007

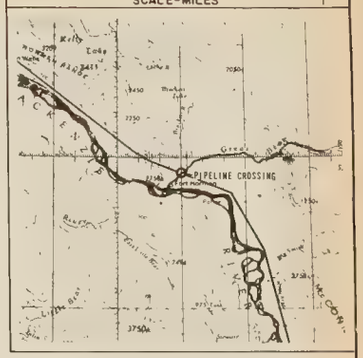
LEGEND

- TEST HOLE LOCATION
- PIPELINE LOCATION
- PROFILE DIRECTION AND LIMITS
- FLOW DIRECTION

KEY MAP

10 0 10 20 30 40 N

SCALE - MILES

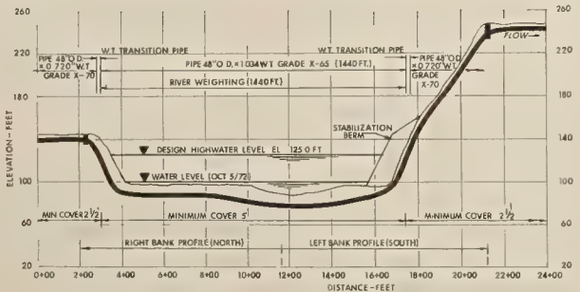


GENERAL NOTES

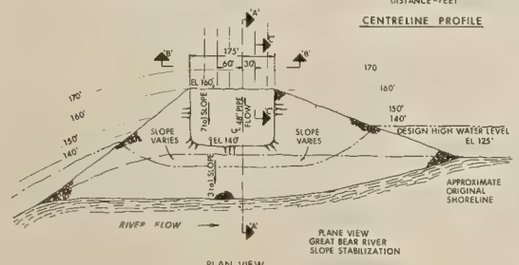
1 SCALES ARE APPROXIMATE. THE FIVE FOOT CONTOUR INTERVALS SHOWN ARE UNCONTROLLED FORM LINES PRODUCED FROM AIR PHOTOGRAPHY
2 DRAINAGE AND EROSION CONTROL MEASURES (INCLUDING REVEGETATION) ARE OUTLINED IN EXHIBIT B(b)(i) GEOTECHNICAL 3 B TERRAIN STABILITY
3 PIPE WILL BE WEIGHTED TO PROVIDE 20% NEGATIVE BUOYANCY

SPECIFIC NOTES

1 ESTIMATED DESIGN DISCHARGE - 50,000 C F S.
2 RIVER BED MATERIAL - BEDROCK OUTCROPS, GRAVEL AND COBBLE PAVING OBSERVED IN VICINITY OF CROSSING
3 NO EVIDENCE OF BANK EROSION OVER PAST 21 YEARS
4 DRAINAGE AREA - 56,300 SQUARE MILES AT OUTLET
5 APPROXIMATE PIPELINE CROSSING LOCATION U T M GRID ZONE 7, 205,000 mN ; 382,000 mE
6 NATIONAL TOPOGRAPHI SERIES, FORT NORMAN, SHEET 96 C
7 APPROXIMATELY 48 MILES SOUTH EAST OF NORMAN WELLS N.W.T. DISTRICT OF MACKENZIE
8 DITCH ACCROSS CHANNEL WILL BE BACKFILLED WITH ORIGINAL BED MATERIAL CAST DOWN STREAM DURING EXCAVATION



CENTRELINE PROFILE

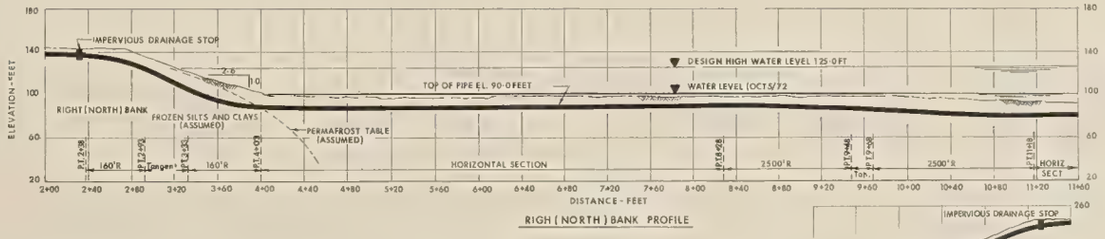


PLAN VIEW

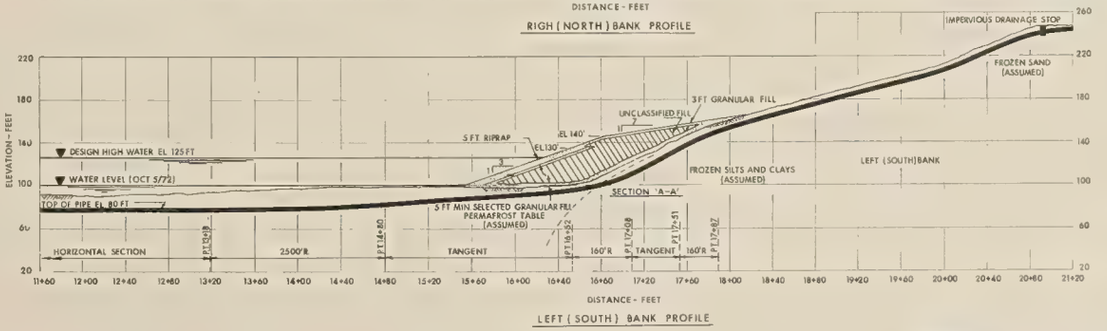
SCALE 1" = 100'

NOTES

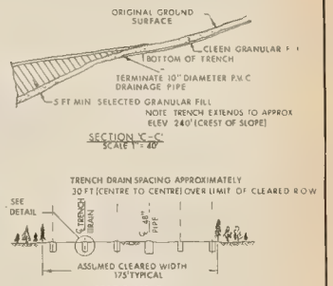
1 BACKFILL OF PIPE TRENCH ON VALLEY WALL SLOPES TO BE SELECTED MATERIAL
2 DATUM ELEVATION 100 FT WATER LEVEL OCT 11/72
3 FIELDS BENDS SHALL HAVE A RADIUS OF CURVATURE OF 160 FT UNLESS OTHERWISE SPECIFIED
4 CHANNEL CROSS SECTION BASED ON PROFILE MEASURED 5300 FT DOWN STREAM.
5 DRAWINGS ARE BASED ON PRELIMINARY DESIGN AND ARE SUBJECT TO CHANGE
6 STATION 0+00 CORRESPONDS TO M.P 421.18



RIGH (NORTH) BANK PROFILE



LEFT (SOUTH) BANK PROFILE



GREAT BEAR RIVER CROSSING
PROFILE

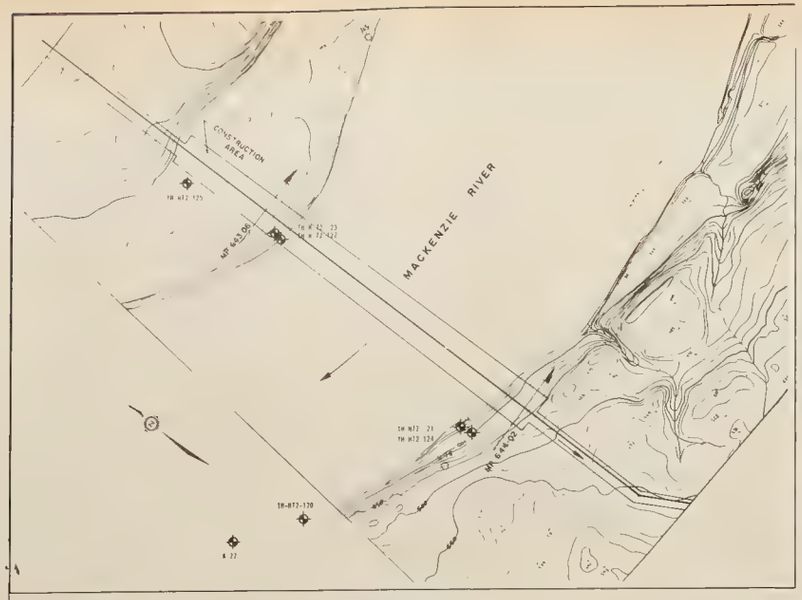
DRAWING No. 1B-0210-1007

NORTHERN ENGINEERING SERVICES COMPANY LIMITED
CALGARY ALBERTA
ENGINEERS FOR
CANADIAN ARCTIC GAS PIPELINE LIMITED

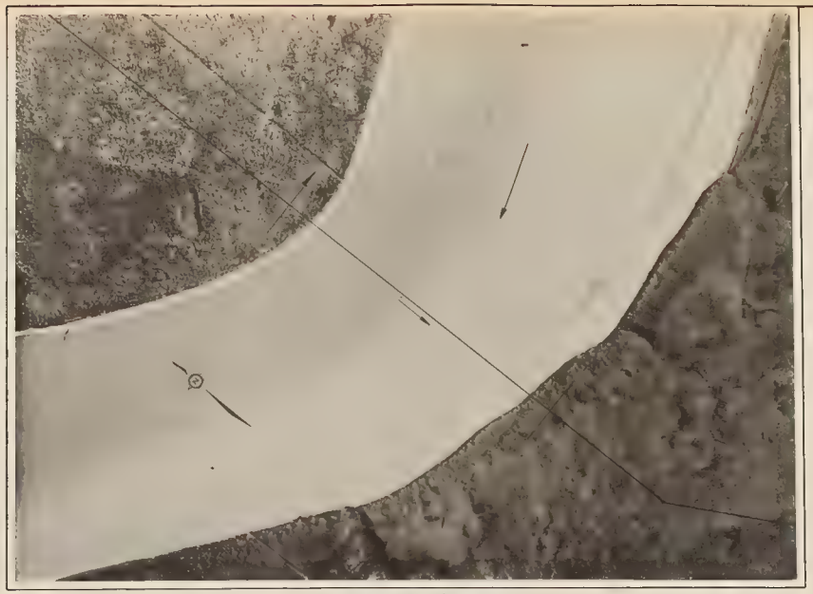
GREAT BEAR RIVER CROSSING
PROFILE AND PLAN VIEWS

SCALE
DATE
PROJECT No.

SECTION H-5



SCALE - FEET
PLAN - FORM LINES



SCALE - FEET
PLAN - AERIAL PHOTOGRAPHY

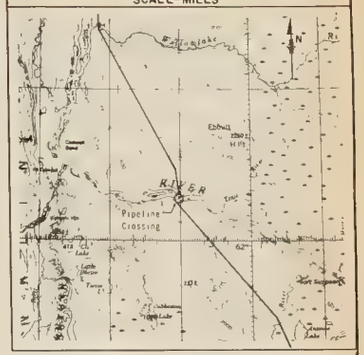
MACKENZIE RIVER CROSSING
PLAN
DRAWING No. 1B-0209 - 1017

LEGEND

- TEST HOLE LOCATION
- PIPELINE LOCATION
- PROFILE DIRECTION AND LIMITS
- FLOW DIRECTION

KEY MAP

10 0 10 20 30 40
SCALE-MILES

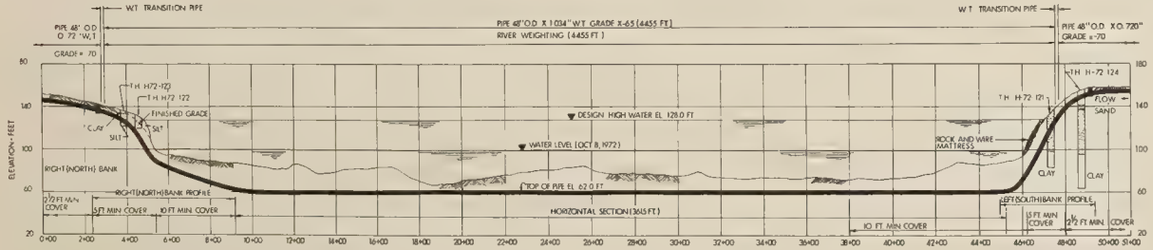


GENERAL NOTES

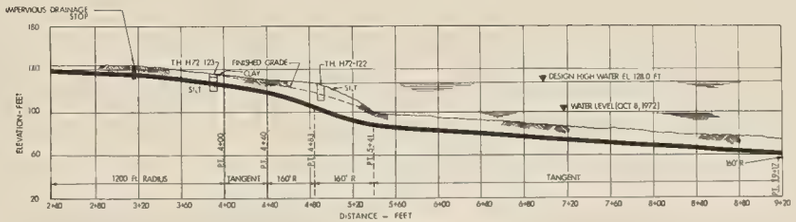
1. SCALES ARE APPROXIMATE. THE TEN FOOT CONTOUR INTERVALS SHOWN ARE UNCONTROLLED FORM LINES PRODUCED FROM AIR PHOTOGRAPHY
2. DRAINAGE AND EROSION CONTROL MEASURES (INCLUDING REVEGETATION) ARE OUTLINED IN EXHIBIT B(b)(i) GEOTECHNICAL 3 8
3. PIPE WILL BE WEIGHTED TO PROVIDE 20% NEGATIVE BUOYANCY

SPECIFIC NOTES

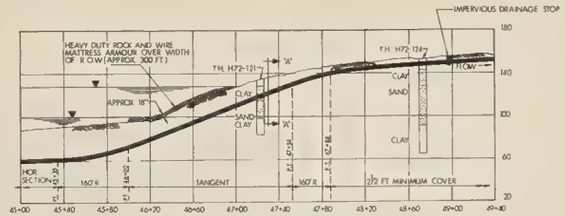
1. ESTIMATED DESIGN FLOOD DISCHARGE 900,000 C.F.S.
2. DRAINAGE AREA 491,000 SQ. MILES
3. RIVER CHANNEL BOTTOM GRAB SAMPLE INDICATES SANDY MATERIAL
4. APPROXIMATELY 42 MILES N.W. OF FT. SIMPSON, N.W.T. DISTRICT OF MACKENZIE
5. APPROXIMATE PIPELINE CROSSING LOCATION U.T.M. GRID ZONE 10 6,890,000 mN, 525,000 mE
6. NATIONAL TOPOGRAPHIC SERIES, CAMSELL BEND 95 J
7. RIVER CHANNEL DITCH SPOIL TO BE CAST DOWNSTREAM. DITCH BACKFILL (CHANNEL SECTION) WILL BE OBTAINED FROM RIVER BED



CENTRELINE PROFILE



RIGHT (NORTH) BANK PROFILE



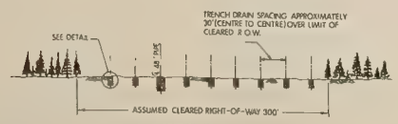
LEFT (SOUTH) BANK PROFILE

NOTES

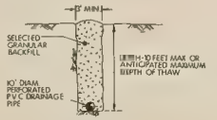
1) BACKFILL OF PIPE TRENCH ON VALLEY WALL SLOPES TO BE SELECTED MATERIAL
2) DATUM ELEVATION 100 FT - WATER LEVEL OCT 8, 1972
3) SLOPES INDICATED ARE APPROXIMATE NATURAL SLOPES
4) DRAWINGS ARE BASED ON PRELIMINARY DESIGN AND ARE SUBJECT TO CHANGE
5) STATION 0+00 CORRESPONDS TO M.P. 643.06

LEGEND

FROZEN



SECTION 'A-A'



TRENCH DETAIL (TYPICAL)

NOTE TRENCH DRAINS REQUIRED FROM APPROXIMATELY EL 100 (TOE OF SLOPE) TO EL 720 (CREST OF SLOPE) APPROXIMATE LENGTH 700'

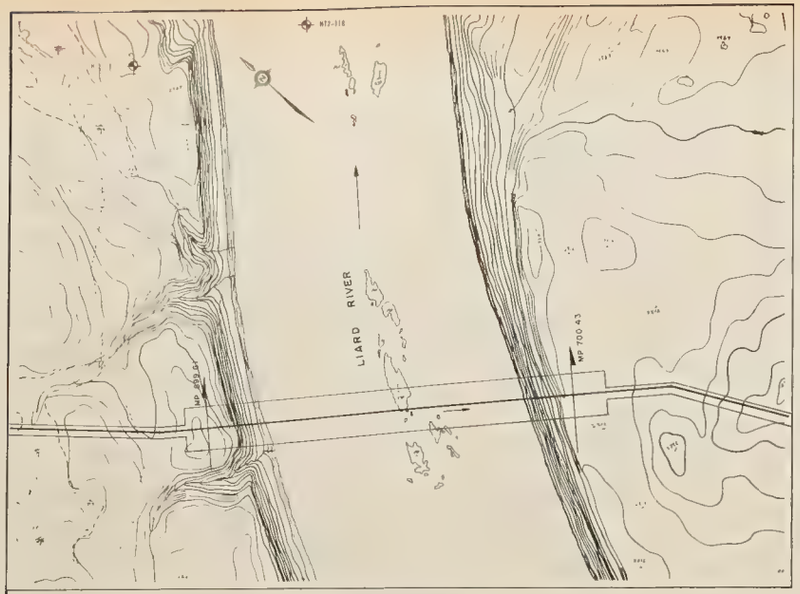
MACKENZIE RIVER CROSSING
PROFILES
DRAWING No. 1B-0210 - 1017

NORTHERN ENGINEERING SERVICES LIMITED
CALGARY ALBERTA
ENGINEERS FOR
CANADIAN ARCTIC GAS STUDY LTD.

MACKENZIE RIVER
(BURNT ISLAND)
PROFILE & PLAN VIEWS

SCALE
DATE
PROJECT No.

SECTION H-6



SCALE - FEET

PLAN - FORM LINES

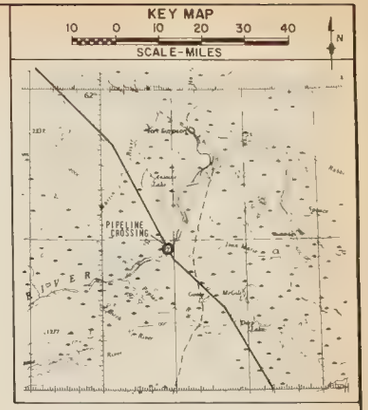
SCALE - FEET

PLAN - AERIAL PHOTOGRAPHY

LIARD RIVER CROSSING
PLAN
DRAWING No. 1B - 0209 - 1018

LEGEND

- TEST HOLE LOCATION
- PIPELINE LOCATION
- PROFILE DIRECTION AND LIMITS
- FLOW DIRECTION

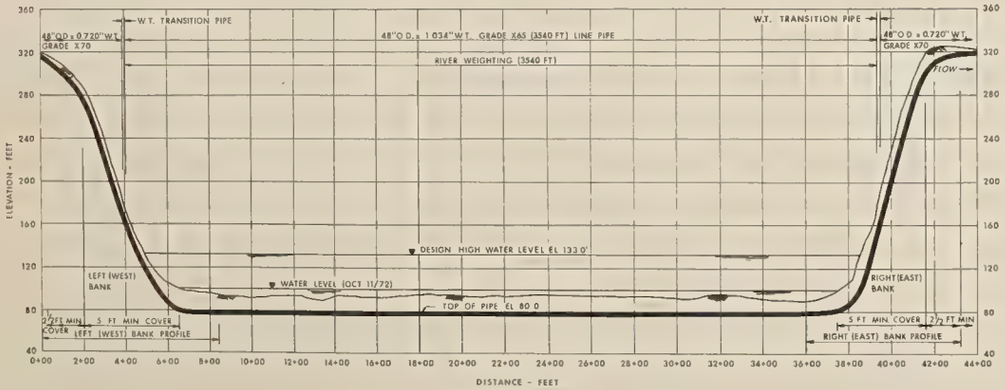


GENERAL NOTES

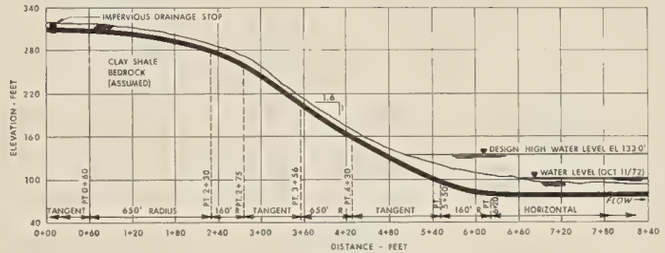
1. SCALES ARE APPROXIMATE. THE FIVE FOOT CONTOUR INTERVALS SHOWN ARE UNCONTROLLED FORM LINES PRODUCED FROM AIR PHOTOGRAPHY
2. DRAINAGE AND EROSION CONTROL MEASURES (INCLUDING REVEGETATION) ARE OUTLINED IN EXHIBIT B(b) (i) GEOTECHNICAL 3.8
3. PIPE WILL BE WEIGHTED TO PROVIDE 20% NEGATIVE BUOYANCY

SPECIFIC NOTES

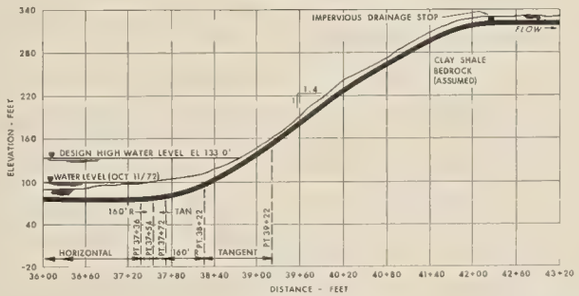
1. DESIGN DISCHARGE - 530,000
2. ESTIMATED AVERAGE DESIGN FLOOD DEPTH 43 FT. C.F.S.
3. PIPELINE RELOCATED SUBSEQUENT TO DRILLING PROGRAM MORE FAVORABLE BANK STABILITY AT RELOCATED SECTION
4. APPROXIMATE PIPELINE CROSSING LOCATION U.T.M. GRID ZONE 10 - 6,816,000 mN 578,000 mE
5. NATIONAL TOPOGRAPHIC SERIES, FORT SIMPSON 95H
6. APPROXIMATELY 28 MILES SOUTH OF FT. SIMPSON, N.W.T., DISTRICT OF MACKENZIE
7. DITCH ACROSS CHANNEL TO BE BACKFILLED WITH ORIGINAL BED MATERIAL CAST DOWNSTREAM DURING EXCAVATION



CENTRELINE PROFILE



LEFT (WEST) BANK PROFILE



RIGHT (EAST) BANK PROFILE

NOTES

1. BACKFILL OF PIPE TRENCH ON VALLEY WALL SLOPES TO BE SELECTED MATERIAL
2. DATUM ELEVATION 100FT WATER LEVEL OCT 11/72
3. FIELD BENDS SHALL HAVE A RADIUS OF CURVATURE OF 160 FT UNLESS OTHERWISE SPECIFIED
4. CHANNEL CROSS SECTION BASED ON PROFILE MEASURED 5300FT DOWN STREAM.
5. DRAWINGS ARE BASED ON PRELIMINARY DESIGN AND ARE SUBJECT TO CHANGE
6. STATION 0+00 CORRESPONDS TO M.P 699.61

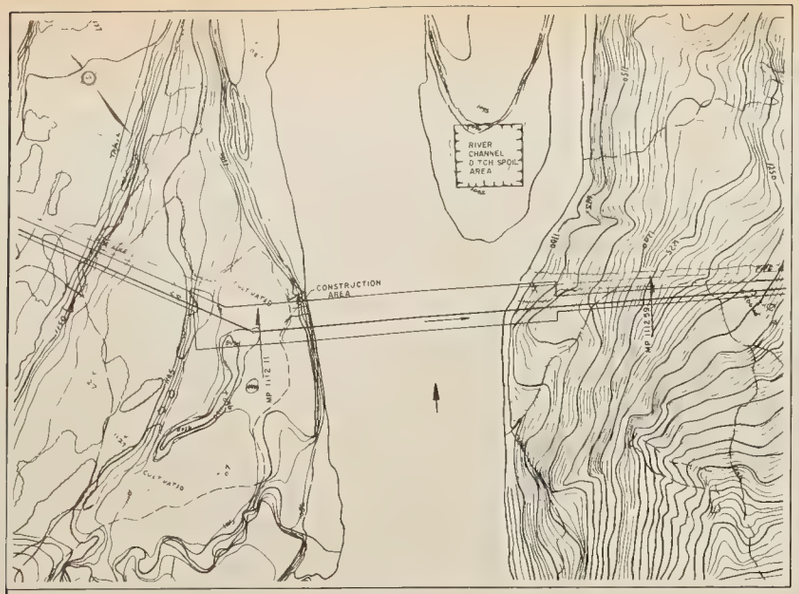
LIARD RIVER CROSSING
PROFILE
DRAWING No. 1B - 0210 - 1018

NORTHERN ENGINEERING SERVICES LIMITED
CALGARY ALBERTA
ENGINEERS FOR
CANADIAN ARCTIC GAS STUDY LTD.

LIARD RIVER CROSSING
PROFILE AND PLAN VIEWS

SCALE
DATE
PROJECT No

SECTION H-7



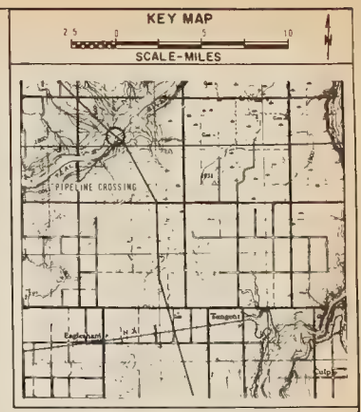
PLAN – FORM LINES

PLAN - AERIAL PHOTOGRAPHY

PEACE RIVER CROSSING
PLAN
DRAWING No. 2A-0209-1001

LEGEND

- PIPELINE LOCATION
- PROFILE DIRECTION AND LIMITS
- FLOW DIRECTION

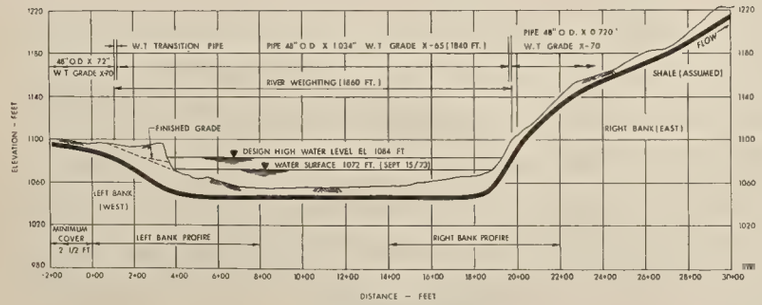


GENERAL NOTES

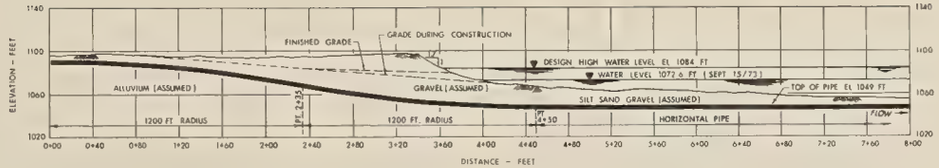
1. SCALES ARE APPROXIMATE. THE FIVE FOOT CONTOUR INTERVALS SHOWN ARE UNCONTROLLED FORM LINES PRODUCED FROM AIR PHOTOGRAPHY
2. DRAINAGE AND EROSION CONTROL MEASURES (INCLUDING REVEGETATION) ARE OUTLINED IN EXHIBIT B(b)(i) GEOTECHNICAL 3-8 TERRAIN STABILITY
3. PIPE WILL BE WEIGHTED TO PROVIDE 20 % NEGATIVE BUOYANCY

SPECIFIC NOTES

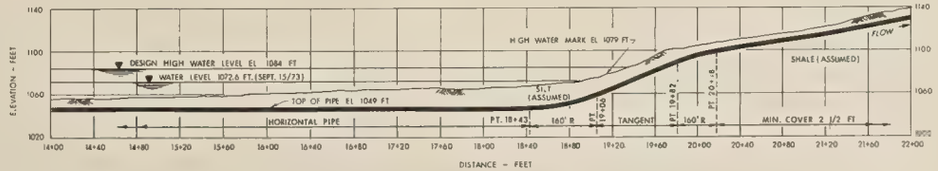
1. DRAINAGE AREA - 48,750 SQUARE MILES
2. DESIGN DISCHARGE - 400,000 C.F.S
3. COMPUTED MEAN DESIGN DISCHARGE DEPTH - 21 FEET
4. RIVER CHANNEL DITCH TO BE BACKFILLED WITH ORIGINAL BED MATERIAL STOCKPILED IN SPOIL AREA



CENTRELINE PROFILE



LEFT BANK PROFILE



RIGHT BANK PROFILE

NOTES

1. ELEVATIONS ARE APPROXIMATE AND REPRESENT ELEVATION ABOVE SEA LEVEL
2. SLOPES INDICATED ARE APPROXIMATE NATURAL SLOPES
3. BACKFILL MAY BE NATIVE MATERIAL
4. SLOPES AND BANKS WILL BE REVEGETATED ABOVE HIGH WATER MARKS.
5. MINIMUM OF 25 FEET HORIZONTAL COVER REQUIRED BETWEEN STATIONS 19+06 AND 19+82
6. STATION 0+00 CORRESPONDS TO M.P. 1112.15

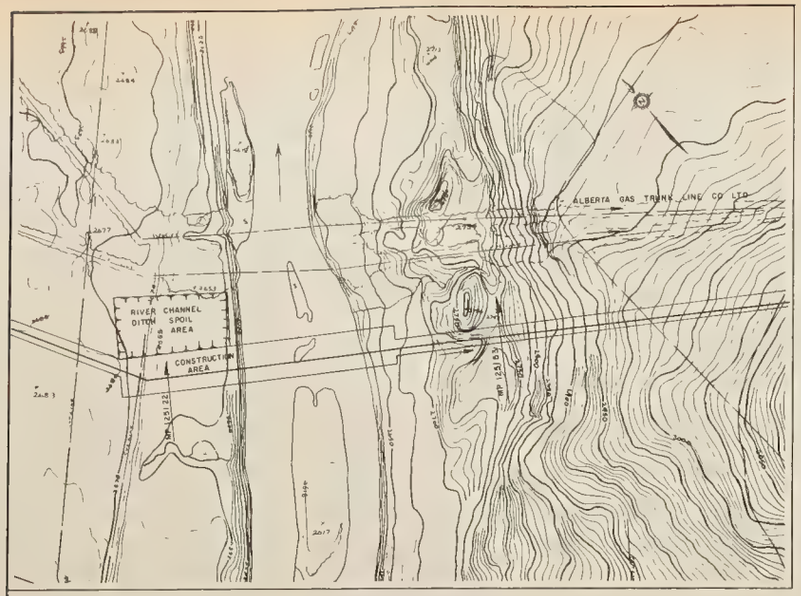
PEACE RIVER CROSSING
PROFILE
DRAWING No. 2A-0210-1001

NORTHERN ENGINEERING SERVICES LIMITED
CALGARY ALBERTA
ENGINEERS FOR
CANADIAN ARCTIC GAS STUDY LTD.

PEACE RIVER CROSSING
PROFILE AND PLAN VIEWS

SCALE
DATE
PROJECT No

SECTION H-8



400 0 0 400 800
SCALE - FEET

PLAN - FORM LINES

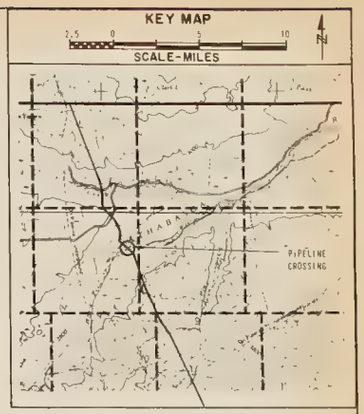
400 200 0 400 800
SCALE - FEET

PLAN - AERIAL PHOTOGRAPHY

ATHABASCA RIVER CROSSING
PLAN
DRAWING No 2A-0209-1003

LEGEND

- PIPELINE LOCATION
- PROFILE DIRECTION AND LIMITS
- FLOW DIRECTION

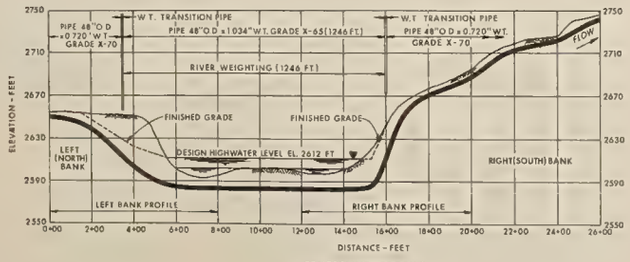


GENERAL NOTES

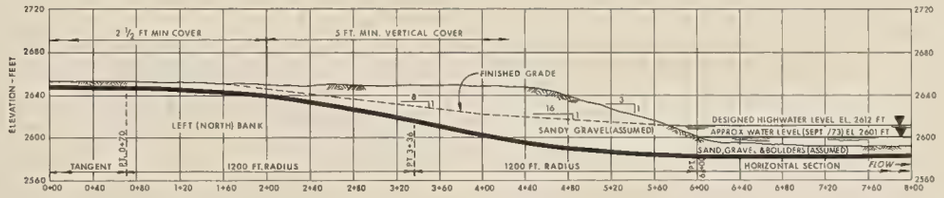
1 SCALES ARE APPROXIMATE THE FIVE FOOT CONTOUR INTERVALS SHOWN ARE UNCONTROLLED FORM LINES PRODUCED FROM AIR PHOTOGRAPHY
2 DRAINAGE AND EROSION CONTROL MEASURES (INCLUDING REVEGETATION) ARE OUTLINED IN EXHIBIT 8(b)(i) GEOTECHNICAL 3 8 TERRAIN STABILITY
3 PIPE WILL BE WEIGHTED TO PROVIDE 20% NEGATIVE BUOYANCY

SPECIFIC NOTES

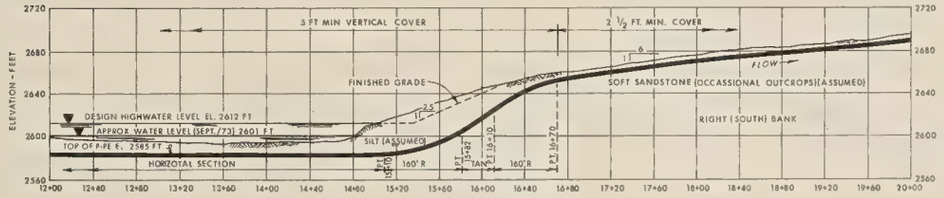
1 DRAINAGE AREA 6550 SQUARE MILES
2 DESIGN DISCHARGE 150,000 C F S
3 DESIGN DISCHARGE COMPUTED MEAN DEPTH 16 FEET
4 RIVER CHANNEL DITCH TO BE BACKFILLED WITH ORIGINAL BED MATERIAL STOCKPILLED IN SPOIL AREA



CENTRELINE PROFILE



LEFT BANK PROFILE



RIGHT BANK PROFILE

NOTES

1 ELEVATIONS ARE APPROXIMATE AND REPRESENT ELEVATION ABOVE SEA LEVEL
2 SLOPES ARE APPROXIMATE NATURAL SLOPES UNLESS OTHERWISE INDICATED
3 BACKFILL MAY BE NATIVE MATERIAL
4 MINIMUM HORIZONTAL COVER ON RIGHT (SOUTH) BANK TO BE 50 FT. BETWEEN STATIONS 14+80 AND 16+00
5 STATION 0+00 CORRESPONDS TO M P 1251.22

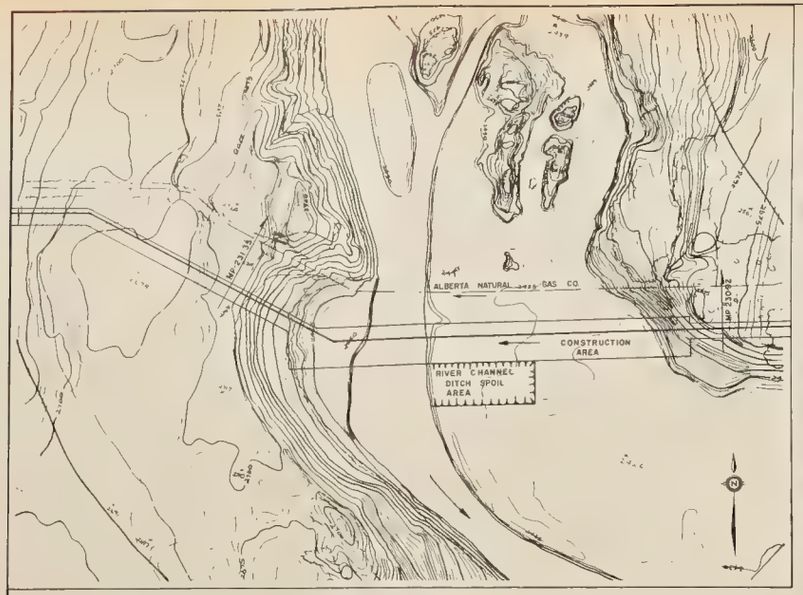
ATHABASCA RIVER CROSSING
PROFILES
DRAWING No. 2A-0210-1003

NORTHERN ENGINEERING SERVICES LIMITED
CALGARY ALBERTA
ENGINEERS FOR
CANADIAN ARCTIC GAS STUDY LTD.

ATHABASCA RIVER CROSSING
PROFILE AND PLAN VIEWS

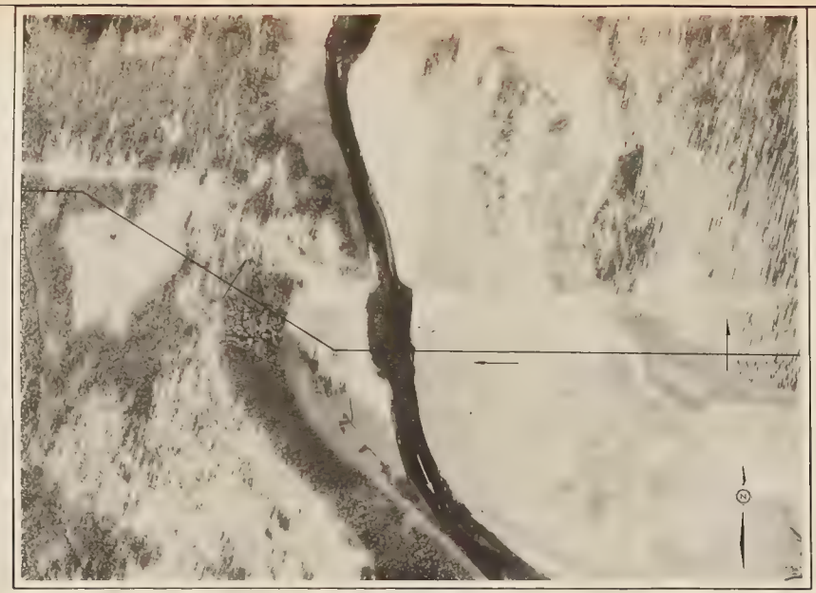
SCALE
DATE
PROJECT No.

SECTION H-9



SCALE - FEET

PLAN - FORM LINES



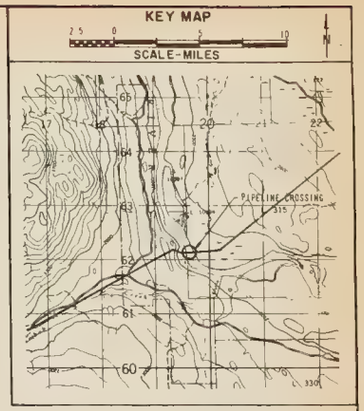
SCALE - FEET

PLAN - AERIAL PHOTOGRAPHY

KOOTENAY RIVER CROSSING
PLAN
DRAWING No. 2C-0209-1004

LEGEND

- PIPELINE LOCATION
- PROFILE DIRECTION AND LIMITS
- FLOW DIRECTION

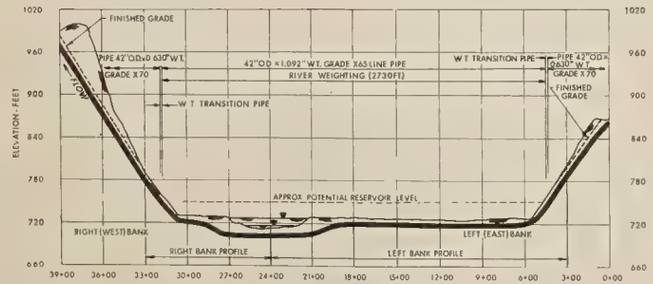


GENERAL NOTES

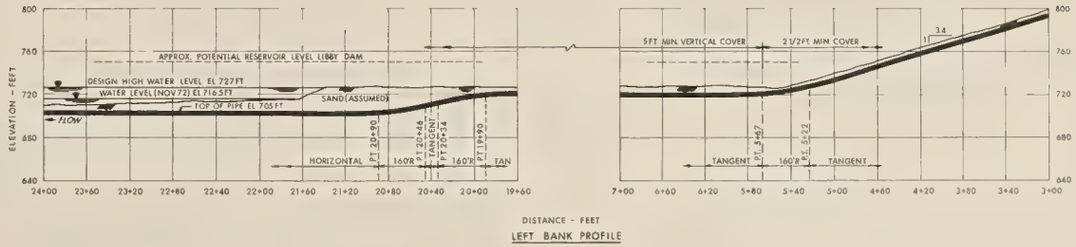
1. SCALES ARE APPROXIMATE. THE FIVE FOOT CONTOUR INTERVALS SHOWN ARE UNCONTROLLED FORM LINES PRODUCED FROM AIR PHOTOGRAPHY
2. DRAINAGE AND EROSION CONTROL MEASURES (INCLUDING REVEGETATION) ARE OUTLINED IN EXHIBIT B (b) (i) GEOTECHNICAL 3.8 TERRAIN STABILITY
3. PIPE WILL BE WEIGHTED TO PROVIDE 20% NEGATIVE BUOYANCY

SPECIFIC NOTES

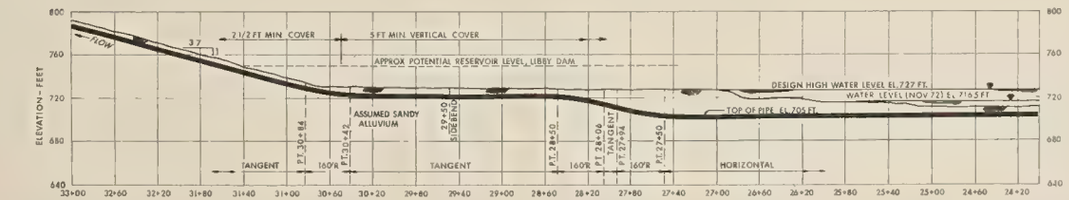
1. DRAINAGE AREA - 52005Q MILES
2. DESIGN DISCHARGE - 70,000 C F S
3. DESIGN DISCHARGE COMPUTED MEAN DEPTH - 11 FT
4. RIVER CHANNEL DITCH TO BE BACKFILLED WITH ORIGINAL BED MATERIAL STOCKPILED IN SPOIL AREA



CENTRELINE PROFILE



LEFT BANK PROFILE



RIGHT BANK PROFILE

NOTES

1. BACKFILL MAY BE NATIVE MATERIAL
2. ASSUMED B.M. ELEVATION AT STATION 26+20 IS 719.7 FT. APPROX. GROUND ELEVATION AT STATION 26+20 IS 2432 FT.
3. PIPE LOCATION PROVIDES FOR MINIMUM 100 FT. HORIZONTAL COVER AT EACH BANK
4. ANTICIPATE LIBBY DAM RESERVOIR TO REACH FULL SUPPLY LEVEL (APPROX 20 FT ABOVE FLOOD PLAIN AT PROPOSED CROSS NGI) DURING JULY 74, AND TO BE DRAWN DOWN TO BELOW FLOOD PLAIN ELEVATION EACH AUTUMN
5. DRAWINGS ARE BASED ON PRELIMINARY DESIGN AND ARE SUBJECT TO CHANGE
6. STATION 0+00 CORRESPONDS TO M.P. 230.92

KOOTENAY RIVER CROSSING
PROFILE
DRAWING No. 2C-0210-1004

NORTHERN ENGINEERING SERVICES LIMITED
CALGARY ALBERTA
ENGINEERS FOR
CANADIAN ARCTIC GAS STUDY LTD.

KOOTENAY RIVER CROSSING
PROFILE AND PLAN VIEWS

SCALE
DATE
PROJECT No

SECTION H - 10

INCISED MEANDERING STREAM

40 0 40 80
SCALE - FEET

STREAM THROUGH MUSKEG

10 5 0 10 20 30
SCALE - FEET

BRAIDED STREAM

200 100 0 200 400 600 800
HORIZONTAL SCALE - FEET

20 0 40 80
VERTICAL SCALE - FEET

BEADED STREAM

20 10 0 20 40
SCALE - FEET

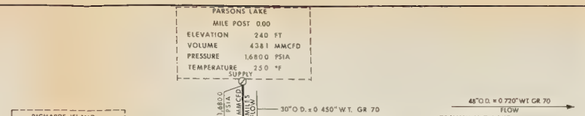
DRAWING No. 4-0210-1099

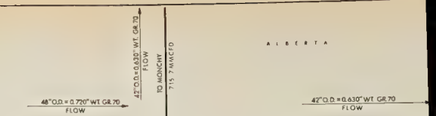
NORTHERN ENGINEERING SERVICES LIMITED
CALGARY ALBERTA
ENGINEERS FOR
CANADIAN ARCTIC GAS STUDY LTD.

TYPICAL STREAM CROSSING
PROFILES

SCALE
DATE
PROJECT No

SECTION H-11





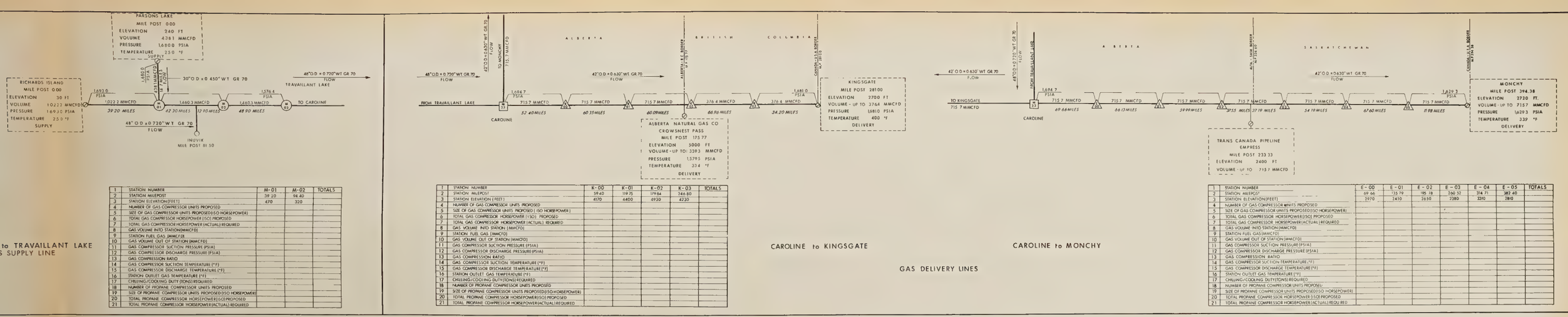
	STATION NUMBER	M-01	M-02	TOTALS
2	STATION MILEPOST	39.10	94.40	
3	STATION ELEVATION (FEET)	470	320	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED			
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED			
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			
8	GAS VOLUME INTO STATION (MMCFD)			
9	STATION FUEL GAS (MMCFD)			
10	GAS VOLUME OUT OF STATION (MMCFD)			
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)			
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)			
13	GAS COMPRESSION RATIO			
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)			
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)			
16	STATION OUTLET GAS TEMPERATURE (°F)			
17	CHILLING/COOLING DUTY (TONS) REQUIRED			
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			

	STATION NUMBER	K-00	K-01	K-02
2	STATION MILEPOST	59.40	119.75	179.84
3	STATION ELEVATION (FEET)	4170	4400	4920
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED			
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED			
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			
8	GAS VOLUME INTO STATION (MMCFD)			
9	STATION FUEL GAS (MMCFD)			
10	GAS VOLUME OUT OF STATION (MMCFD)			
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)			
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)			
13	GAS COMPRESSION RATIO			
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)			
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)			
16	STATION OUTLET GAS TEMPERATURE (°F)			
17	CHILLING/COOLING DUTY (TONS) REQUIRED			
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			

RICHARDS ISLAND to TRAVAILLANT LAKE GAS SUPPLY LINE

	STATION NUMBER	M-03	M-04	M-05	M-06	M-07	M-08	M-09	M-10	M-11	M-12	M-13	M-14	M-15	M-16	M-17	M-18
2	STATION MILEPOST	126.50	177.10	219.62	262.86	310.00	356.89	400.23	446.37	489.83	534.23	563.34	620.00	670.42	716.39	750.82	807.54
3	STATION ELEVATION (FEET)	810	440	330	690	470	310	320	450	700	810	520	1370	930	950	1480	1440
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED	1				1				1				1			
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	30,000				30,000				30,000				30,000			
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED	30,000				30,000				30,000				30,000			
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	10227				0				0				0			
8	GAS VOLUME INTO STATION (MMCFD)	1,460.3															
9	STATION FUEL GAS (MMCFD)	5.3															
10	GAS VOLUME OUT OF STATION (MMCFD)	1,455.0															
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)	1,579.0															
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)	1,695.7															
13	GAS COMPRESSION RATIO	1.080															
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)	16.8															
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)	32.9															
16	STATION OUTLET GAS TEMPERATURE (°F)	14.9															
17	CHILLING/COOLING DUTY (TONS) REQUIRED	3233															
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED	1				1				1				1			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	17000				17000				17000				17000			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED	17000				17000				17000				17000			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	7338				0				0				0			

	STATION NUMBER	M-19	M-20	M-21	M-22	M-23	M-24	M-25	M-26	M-27	M-28	M-29	M-30	M-31	M-32	M-33	TOTALS
2	STATION MILEPOST	858.79	900.16	941.84	982.14	1020.29	1062.47	1108.23	1148.80	1190.20	1229.68	1263.21	1310.69	1353.10	1391.17	1429.60	
3	STATION ELEVATION (FEET)	1810	1100	1470	1790	2540	2520	1860	2130	2140	2600	4000	3050	2850	3400	3860	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED	1		1				1				2				2	6
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	27,500		27,500				27,500				27,500				27,500	
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED	55,000		55,000				55,000				55,000				55,000	385,000
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	31,262		31,367				28,692				2 3 3 7				1 0 7 3	420,225
8	GAS VOLUME INTO STATION (MMCFD)	1,455.0		1,449.8				1,443.8				1 4 3 8 6				1 4 2 4 . 2	
9	STATION FUEL GAS (MMCFD)	5.6		5.6				5.2				4 3				2 9	19.9
10	GAS VOLUME OUT OF STATION (MMCFD)	1,449.8		1,443.8				1,438.6				1,424.2				1,418.4	
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)	1,330.5		1,330.5				1,435.9				1 4 8 6 1				1 5 8 2 0	
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)	1,400.8		1,589.6				1,695.8				1,695.8				1,695.8	
13	GAS COMPRESSION RATIO	1.219		1.196				1.181				1 1 4 1				1 0 7 2	
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)	18.4		52.7				52.0				4 3 2				4 3 7	
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)	71.3		105.1				99.3				7 8 3				6 1 5	
16	STATION OUTLET GAS TEMPERATURE (°F)	71.3		105.0				99.3				7 8 3				6 1 5	
17	CHILLING/COOLING DUTY (TONS) REQUIRED	0		0				0				0				0	0
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED	0		0				0				0				0	2
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	0		0				0				0				0	34,000
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED	0		0				0				0				0	68,000
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	0		0				0				0				0	7,338



		M-01	M-02	TOTALS
1	STATION NUMBER			
2	STATION MILEPOST	39.20	94.40	
3	STATION ELEVATION (FEET)	470	320	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED			
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED			
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			
8	GAS VOLUME INTO STATION (MMCFD)			
9	STATION FUEL GAS (MMCFD)			
10	GAS VOLUME OUT OF STATION (MMCFD)			
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)			
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)			
13	GAS COMPRESSION RATIO			
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)			
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)			
16	STATION OUTLET GAS TEMPERATURE (°F)			
17	CHILLING/COOLING DUTY (TONS) REQUIRED			
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			

ISLAND to TRAVAILLANT LAKE
GAS SUPPLY LINE

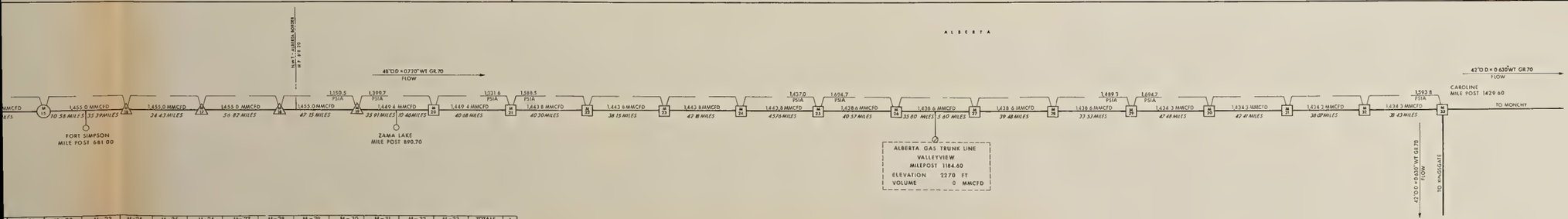
		K-00	K-01	K-02	K-03	TOTALS
1	STATION NUMBER					
2	STATION MILEPOST	59.40	119.5	179.84	246.80	
3	STATION ELEVATION (FEET)	4170	4400	4930	4220	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED					
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)					
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED					
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED					
8	GAS VOLUME INTO STATION (MMCFD)					
9	STATION FUEL GAS (MMCFD)					
10	GAS VOLUME OUT OF STATION (MMCFD)					
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)					
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)					
13	GAS COMPRESSION RATIO					
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)					
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)					
16	STATION OUTLET GAS TEMPERATURE (°F)					
17	CHILLING/COOLING DUTY (TONS) REQUIRED					
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED					
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)					
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED					
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED					

CAROLINE to KINGSGATE

GAS DELIVERY LINES

		E-00	E-01	E-02	E-03	E-04	E-05	TOTALS
1	STATION NUMBER							
2	STATION MILEPOST	69.66	133.79	195.78	260.52	314.71	382.40	
3	STATION ELEVATION (FEET)	2970	2410	2650	2380	2310	2810	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED							
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)							
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED							
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED							
8	GAS VOLUME INTO STATION (MMCFD)							
9	STATION FUEL GAS (MMCFD)							
10	GAS VOLUME OUT OF STATION (MMCFD)							
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)							
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)							
13	GAS COMPRESSION RATIO							
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)							
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)							
16	STATION OUTLET GAS TEMPERATURE (°F)							
17	CHILLING/COOLING DUTY (TONS) REQUIRED							
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED							
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)							
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED							
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED							

CAROLINE to MONCHY



TRAVAILLANT LAKE to CAROLINE

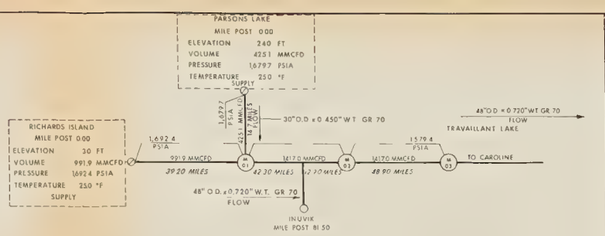
MAINLINE

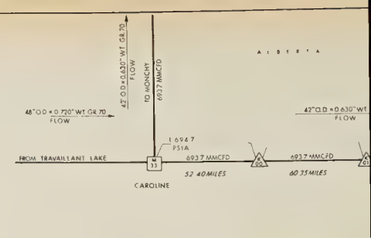
LEGEND

- PIPELINE
- STAT ON WITH CENTRIFUGAL - GAS TURBINE GAS COMPRESSION & CENTRIFUGAL - GAS TURBINE PROPANE COMPRESSION FOR GAS CHILLING
- STATION WITH CENTRIFUGAL - GAS TURBINE GAS COMPRESSION & GAS TO AIR DIRECT HEAT EXCHANGE FOR GAS COOLING
- STAT ON WITH CENTRIFUGAL - GAS TURBINE GAS COMPRESSION
- GAS MEASUREMENT STATION
- 1693 PSIA — PIPELINE PRESSURE
- 4727 MMCFD — GAS FLOWING VOLUME (14.73 PSIA & 60°F)
- SIDE VALVE FOR FUTURE DELIVERIES

	M-21	M-22	M-23	M-24	M-25	M-26	M-27	M-28	M-29	M-30	M-31	M-32	M-33	TOTALS	
1	941.84	987.16	1020.29	1062.47	1108.23	1148.80	1190.20	1229.68	1263.21	1310.69	1353.10	1391.17	1429.60		2
2	1470	1790	2540	2520	1860	2130	2140	2690	4000	3050	2850	3400	3880		3
3	7	-	-	-	2	-	-	-	2	-	-	-	3	14	4
4	27500	-	-	-	27500	-	-	-	27500	-	-	-	27500		5
5	55000	-	-	-	55000	-	-	-	55000	-	-	-	55000	391,000	6
6	21367	-	-	-	28600	-	-	-	21,537	-	-	-	11,073	130 235	7
7	1.4494	-	-	-	1.4438	-	-	-	1.438.6	-	-	-	1434.3		8
8	5.6	-	-	-	5.2	-	-	-	4.3	-	-	-	2.9	28.9	9
9	1.4438	-	-	-	1.4366	-	-	-	1.434.3	-	-	-	1.431.4		10
10	1.3355	-	-	-	1.4359	-	-	-	1.4861	-	-	-	1.582.0		11
11	1.5896	-	-	-	1.695.8	-	-	-	1.693.8	-	-	-	1.695.8		12
12	1.196	-	-	-	1.181	-	-	-	1141	-	-	-	1077		13
13	327	-	-	-	520	-	-	-	432	-	-	-	437		14
14	105.1	-	-	-	99.3	-	-	-	78.3	-	-	-	61.5		15
15	1050	-	-	-	99.3	-	-	-	78.3	-	-	-	61.5		16
16	0	-	-	-	0	-	-	-	0	-	-	-	0	3229	17
17	0	-	-	-	0	-	-	-	0	-	-	-	0	0	18
18	0	-	-	-	0	-	-	-	0	-	-	-	0	17,000	19
19	0	-	-	-	0	-	-	-	0	-	-	-	0	68,000	20
20	0	-	-	-	0	-	-	-	0	-	-	-	0	7,338	21

DESIGNED BY	NORTHERN ENGINEERING SERVICES COMPANY LIMITED CALGARY ALBERTA ENGINEERS AND	
DRAWN BY	CANADIAN ARCTIC GAS PIPELINE LIMITED	
CHECKED BY	FLOW DIAGRAM	SCALE
ENG. MGR. APPROVAL	MAXIMUM CAPACITY	DATE
PROJECT MANAGER	AVERAGE WINTER CONDITIONS - OPERATING YEAR 1	PROJECT No.
		SECTION 1-1 REV

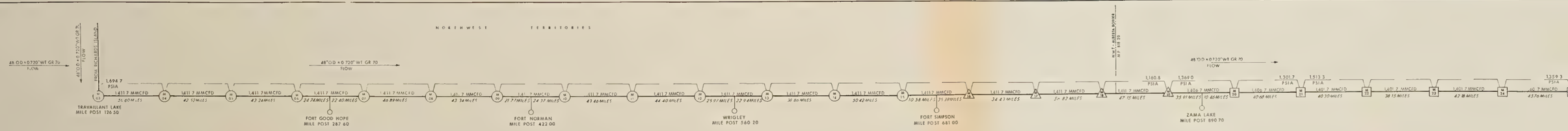




	STATION NUMBER	M-01	M-02	TOTALS
1	STATION NUMBER			
2	STATION MILEPOST	39.20	94.40	
3	STATION ELEVATION (FEET)	470	320	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED			
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED			
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			
8	GAS VOLUME INTO STATION (MMCFD)			
9	STATION FUEL GAS (MMCFD)			
10	GAS VOLUME OUT OF STATION (MMCFD)			
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)			
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)			
13	GAS COMPRESSION RATIO			
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)			
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)			
16	STATION OUTLET GAS TEMPERATURE (°F)			
17	CHILLING/COOLING DUTY (TONS) REQUIRED			
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			

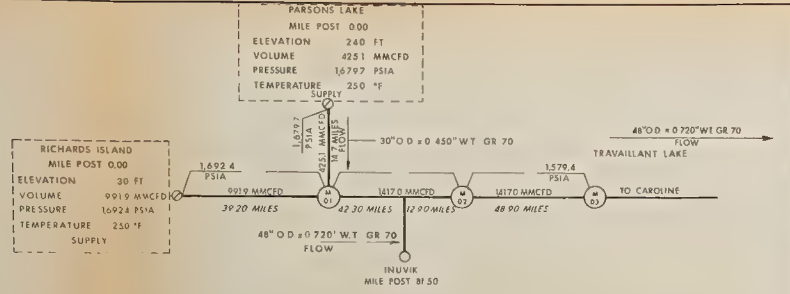
	STATION NUMBER	K-00	K-0
1	STATION NUMBER		
2	STATION MILEPOST	59.40	114
3	STATION ELEVATION (FEET)	4170	440
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED		
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)		
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED		
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED		
8	GAS VOLUME INTO STATION (MMCFD)		
9	STATION FUEL GAS (MMCFD)		
10	GAS VOLUME OUT OF STATION (MMCFD)		
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)		
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)		
13	GAS COMPRESSION RATIO		
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)		
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)		
16	STATION OUTLET GAS TEMPERATURE (°F)		
17	CHILLING/COOLING DUTY (TONS) REQUIRED		
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED		
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)		
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED		
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED		

RICHARDS ISLAND to TRAVAILLANT LAKE
GAS SUPPLY LINE



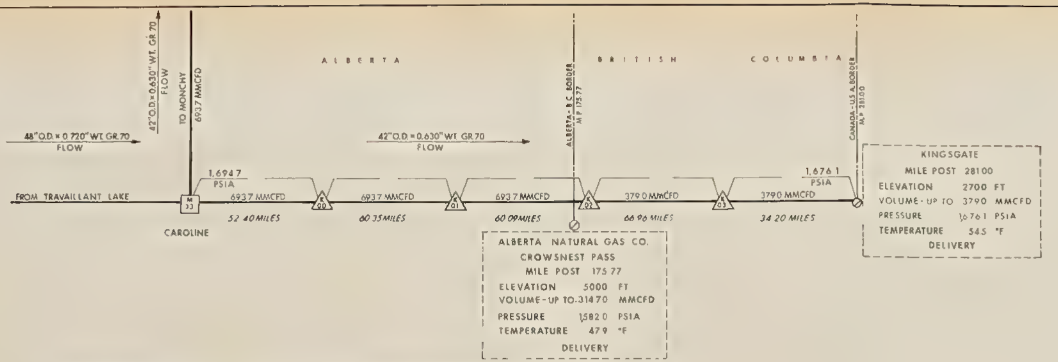
	STATION NUMBER	M-03	M-04	M-05	M-06	M-07	M-08	M-09	M-10	M-11	M-12	M-13	M-14	M-15	M-16	M-17	M-18
2	STATION MILEPOST	26.30	177.10	219.63	267.86	310.00	356.89	400.23	446.37	489.83	534.25	583.14	620.00	670.42	716.19	750.82	807.64
3	STATION ELEVATION (FEET)	810	440	530	690	470	310	320	430	700	810	520	1370	930	950	1480	1440
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED	1				1				1				1			
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	30,000				30,000				30,000				30,000			
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED	30,000				30,000				30,000				30,000			
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	10,932				0				0				0			
8	GAS VOLUME INTO STATION (MMCFD)	1,417.0															
9	STATION FUEL GAS (MMCFD)	5.3															
10	GAS VOLUME OUT OF STATION (MMCFD)	1,411.7															
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)	1,578.8															
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)	1,693.6															
13	GAS COMPRESSION RATIO	1.070															
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)	48															
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)	41.1															
16	STATION OUTLET GAS TEMPERATURE (°F)	12.9															
17	CHILLING/COOLING DUTY (TONS) REQUIRED	4,924															
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED	1				1				1				1			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	17,000				17,000				17,000				17,000			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED	17,000				17,000				17,000				17,000			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	6,898				0				0				0			

	STATION NUMBER	M-19	M-20	M-21	M-22	M-23	M-24	M-25	M-26	M-27	M-28	M-29	M-30	M-31	M-32	M-33	TOTALS
2	STATION MILEPOST	818.79	901.16	947.84	987.18	1020.79	1062.67	1108.23	1148.85	1190.20	1229.68	1263.21	1310.69	1353.0	1391.12	429.80	
3	STATION ELEVATION (FEET)	1810	1100	1470	1790	2540	2520	1860	2130	2140	2600	4000	3050	2850	3400	1890	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED	2		2				2				2		2		2	10
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	27,500		27,500				27,500				27,500				27,500	395,000
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED	55,000		55,000				55,000				55,000				55,000	395,000
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	26,673		26,722				26,107				24,823				24,823	138,880
8	GAS VOLUME INTO STATION (MMCFD)	1,411.7		1,406.7				1,401.7				1,398.8				1,392.1	
9	STATION FUEL GAS (MMCFD)	5.0		5.0				4.9				4.7				4.7	29.6
10	GAS VOLUME OUT OF STATION (MMCFD)	1,406.7		1,401.7				1,396.8				1,392.1				1,387.4	
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)	1,559.7		1,700.6				1,558.2				1,731.8				1,665.0	
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)	1,370.1		1,514.4				1,576.8				1,587.9				1,694.7	
13	GAS COMPRESSION RATIO	.82		1.165				1.162				1.158				1.158	
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)	29.2		59.3				67.4				44.8				38	
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)	75.6		105.5				106.4				97.5				100.1	
16	STATION OUTLET GAS TEMPERATURE (°F)	75.6		105.5				106.4				97.5				100.1	
17	CHILLING/COOLING DUTY (TONS) REQUIRED	0		0				0				0				0	4,924
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED	0		0				0				0				0	1
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	0		0				0				0				0	17,000
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED	0		0				0				0				0	17,000
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	0		0				0				0				0	6,898



RICHARDS ISLAND to TRAVAILLANT LAKE
GAS SUPPLY LINE

		M-01	M-02	TOTALS
1	STATION NUMBER	M-01	M-02	TOTALS
2	STATION MILEPOST	39 20	94 40	
3	STATION ELEVATION (FEET)	470	320	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED			
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED			
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			
8	GAS VOLUME INTO STATION (MMCFD)			
9	STATION FUEL GAS (MMCFD)			
10	GAS VOLUME OUT OF STATION (MMCFD)			
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)			
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)			
13	GAS COMPRESSION RATIO			
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)			
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)			
16	STATION OUTLET GAS TEMPERATURE (°F)			
17	CHILLING/COOLING DUTY (TONS) REQUIRED			
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			

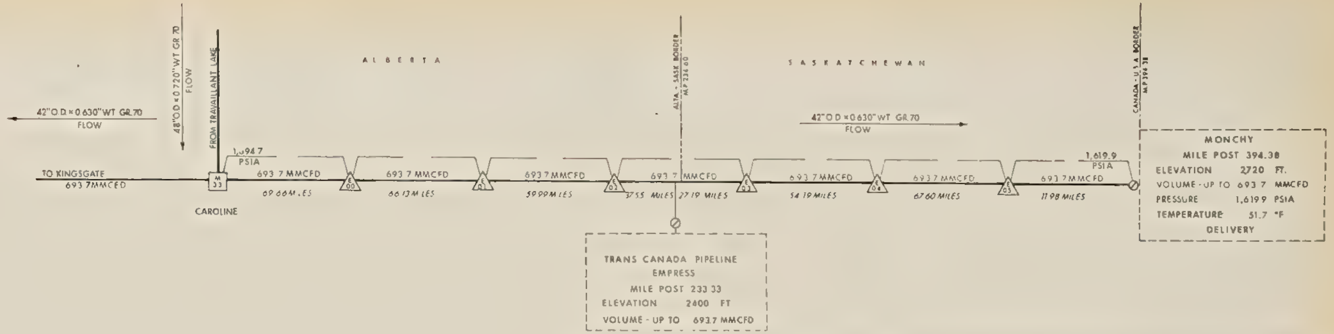


		K-00	K-01	K-02	K-03	TOTALS
1	STATION NUMBER	K-00	K-01	K-02	K-03	TOTALS
2	STATION MILEPOST	59.40	119 75	179.84	246.80	
3	STATION ELEVATION (FEET)	4170	4400	4930	4230	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED					
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)					
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED					
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED					
8	GAS VOLUME INTO STATION (MMCFD)					
9	STATION FUEL GAS (MMCFD)					
10	GAS VOLUME OUT OF STATION (MMCFD)					
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)					
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)					
13	GAS COMPRESSION RATIO					
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)					
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)					
16	STATION OUTLET GAS TEMPERATURE (°F)					
17	CHILLING/COOLING DUTY (TONS) REQUIRED					
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED					
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)					
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED					
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED					

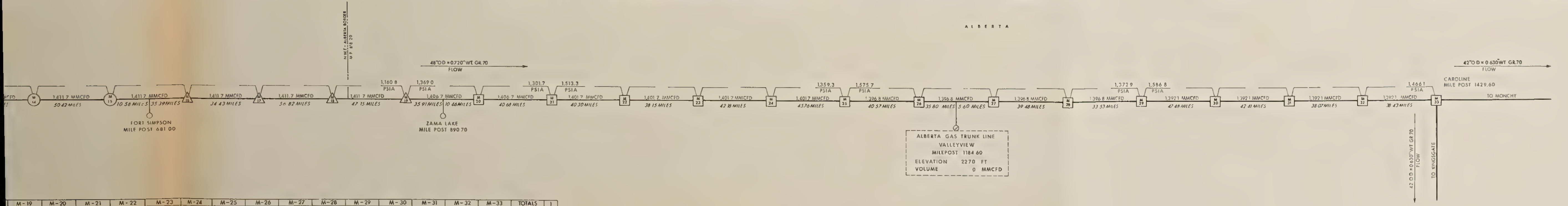
CAROLINE to KINGSGATE

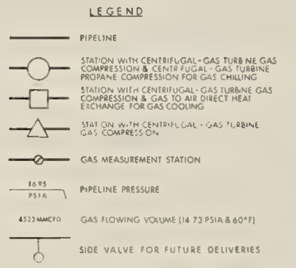
GAS DELIVERY LINES

CAROLINE to MONCHY



		E-00	E-01	E-02	E-03	E-04	E-05	TOTALS
1	STATION NUMBER	E-00	E-01	E-02	E-03	E-04	E-05	TOTALS
2	STATION MILEPOST	69 66	135 79	195 78	260 52	314 71	382.40	
3	STATION ELEVATION (FEET)	2970	2410	2650	2380	3310	2810	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED							
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)							
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED							
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED							
8	GAS VOLUME INTO STATION (MMCFD)							
9	STATION FUEL GAS (MMCFD)							
10	GAS VOLUME OUT OF STATION (MMCFD)							
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)							
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)							
13	GAS COMPRESSION RATIO							
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)							
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)							
16	STATION OUTLET GAS TEMPERATURE (°F)							
17	CHILLING/COOLING DUTY (TONS) REQUIRED							
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED							
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)							
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED							
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED							

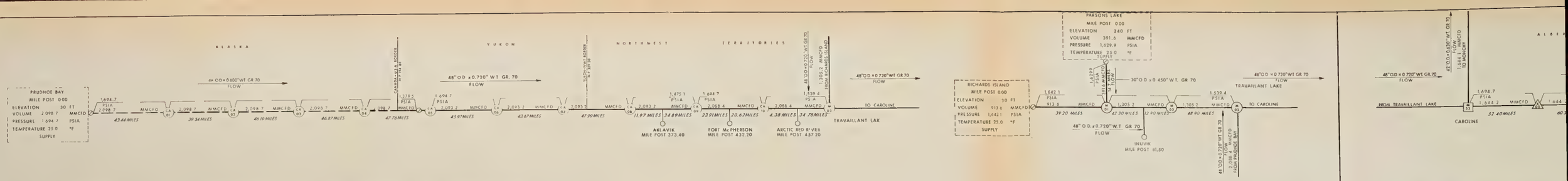




M-19	M-20	M-21	M-22	M-23	M-24	M-25	M-26	M-27	M-28	M-29	M-30	M-31	M-32	M-33	TOTALS	1
854 79	901 16	941 84	982 14	1020 29	062 47	1108 23	1148 80	1190 20	1229 68	1263 21	1310 69	1353 10	1391 17	1429 60		2
1810	1100	1470	1790	2540	2520	1860	2130	2140	2600	4000	3050	2850	3400	3880		3
2		2				2				2				2	10	4
27 500		27 500				27,500				27,500				27,500		5
55,000		55 000				55.000				55,000				55,000	395,000	6
26 673		26 722				26 107				24 823				24,523	138,880	7
1 4 1 7		1 406 7				1,401 7				1 396 8				1,392 1		8
5 0		5 0				4 9				4 7				4 7	296	9
1,406 7		1 401 7				1,396 8				1,392 1				1,387 4		10
1 159 7		1 300 6				1,358 2				1 371 8				1,465 0		11
1,370 1		1 514 4				1,576 8				1,587 9				1,694 7		12
1 182		1 165				1 162				1 158				1 158		13
29 2		59 3				61 4				54 8				58 1		14
75 6		105 5				106 4				97 5				100 1		15
75 6		10[illegible] 5				106 4				97 5				100 1		16
0		0				0				0				0	4,924	17
0		0				0				0				0	4	18
0		0				0				0				0		19
0		0				0				0				0	68,000	20
0		0				0				0				0	6 898	21

TRAVAILLANT LAKE to CAROLINE
MAINLINE

DESIGNED BY	NORTHERN ENGINEERING SERVICES COMPANY LIMITED, CALGARY ALBERTA
DRAWN BY	ENGINEERS FOR
CHECKED BY	CANADIAN ARCTIC GAS PIPELINE LIMITED
	FLOW DIAGRAM
	MAXIMUM CAPACITY
	AVERAGE SUMMER CONDITIONS - OPERATING YEAR 1
	SECTION I-2



	STATION NUMBER	CA-01	CA-02	CA-03	CA-04	CA-05	CA-06	CA-07	CA-08	CA-09	CA-10	TOTALS
2	STATION MILEPOST	43.44	87.98	129.17	176.04	223.80	269.77	313.44	361.43	408.29	457.82	
3	STATION ELEVATION (FEET)	150	690	510	290	240	120	100	60	30	150	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED					1				1		2
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)					30,000				30,000		
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED					30,000				30,000		60,000
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED					14,440				9,593		24,033
8	GAS VOLUME INTO STATION (MMCFD)					2,098.7				2,093.2		
9	STATION FUEL GAS (MMCFD)					5.5				4.8		10.3
10	GAS VOLUME OUT OF STATION (MMCFD)					2,093.2				2,088.4		
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)					1,378.2				1,474.1		
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)					1,696.8				1,696.7		
13	GAS COMPRESS-ON RATIO					1.230				1.150		
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)					11.7				16.9		
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)					37.6				32.1		
16	STATION OUTLET GAS TEMPERATURE (°F)					25.0				25.0		
17	CHILLING / COOLING DUTY (TONS) REQUIRED					4,234				2,403		6,637
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED					1				1		2
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)					17,000				17,000		
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED					17,000				17,000		34,000
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED					8,311				8,311		16,622

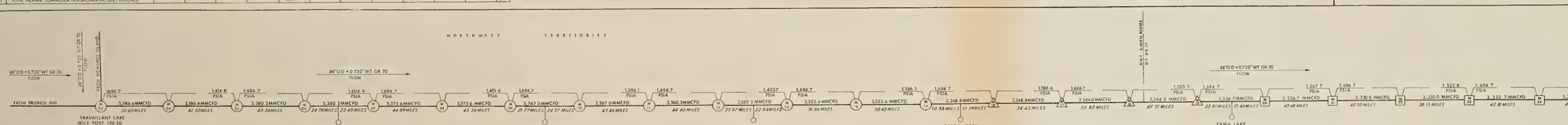
PRUDHOE BAY to TRAVAILLANT LAKE
(COASTAL ROUTE)

GAS SUPPLY LINES

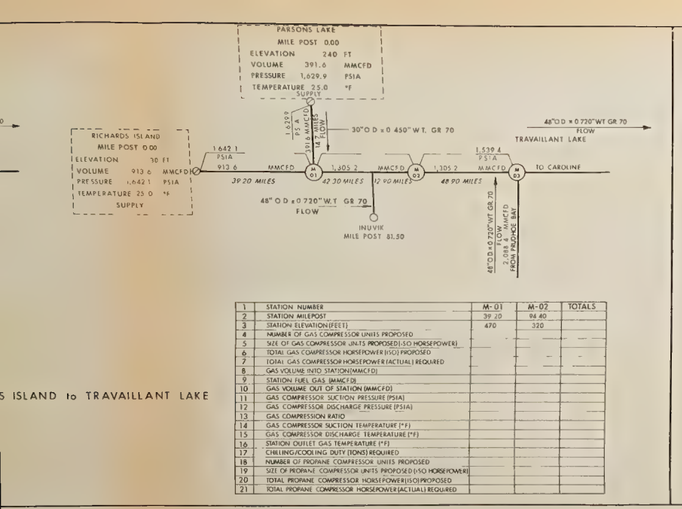
RICHARDS ISLAND to TRAVAILLANT LAKE

	STATION NUMBER	M-01	M-02	TOTALS
2	STATION MILEPOST	39.20	94.40	
3	STATION ELEVATION (FEET)	470	320	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED			
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED			
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			
8	GAS VOLUME INTO STATION (MMCFD)			
9	STATION FUEL GAS (MMCFD)			
10	GAS VOLUME OUT OF STATION (MMCFD)			
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)			
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)			
13	GAS COMPRESSION RATIO			
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)			
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)			
16	STATION OUTLET GAS TEMPERATURE (°F)			
17	CHILLING/COOLING DUTY (TONS) REQUIRED			
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			

	STATION NUMBER
1	STATION NUMBER
2	STATION MILEPOST
3	STATION ELEVATION (FEET)
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED
8	GAS VOLUME INTO STATION (MMCFD)
9	STATION FUEL GAS (MMCFD)
10	GAS VOLUME OUT OF STATION (MMCFD)
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)
13	GAS COMPRESSION RATIO
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)
16	STATION OUTLET GAS TEMPERATURE (°F)
17	CHILLING/COOLING DUTY (TONS) REQUIRED
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED

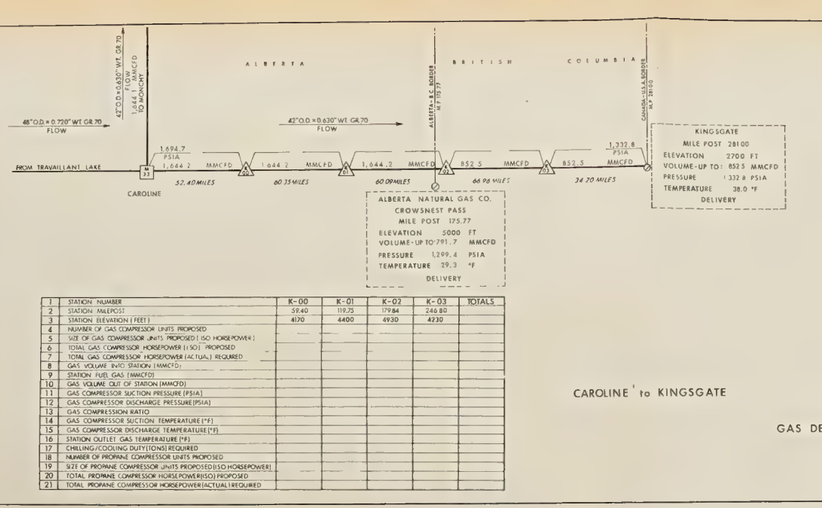


	STATION NUMBER	M-03	M-04	M-05	M-06	M-07	M-08	M-09	M-10	M-11	M-12	M-13	M-14	M-15	M-16	M-17	M-18	M-19	M-20	M-21	M-22	M-23	M-24	M-25	M-26	M-27	M-28	M-29	M-30	M-31	M-32	M-33	TOTALS
2	STATION MILEPOST	126.50	177.10	219.62	262.86	310.00	356.89	400.23	446.37	489.83	534.23	583.14	620.00	670.42	716.39	750.82	807.64	854.79	901.16	941.84	982.14	1020.29	1062.47	1108.23	1148.80	1190.20	1229.68	1261.21	1310.69	1353.10	1391.17	1429.60	
3	STATION ELEVATION (FEET)	810	440	530	690	470	310	570	450	700	810	520	1370	930	950	1480	1440	1810	1100	1470	1790	2540	2520	1860	2130	2140	2600	4000	3050	2850	3400	3890	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED	1		1		1		1		1		1		1		1		2		2		2		2		2		2		2		2	24
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	30,000		30,000		30,000		30,000		30,000		30,000		30,000		30,000		27,500		27,500		27,500		27,500		27,500		27,500		27,500		27,500	
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED	30,000		30,000		30,000		30,000		30,000		30,000		30,000		30,000		55,000		55,000		55,000		55,000		55,000		55,000		55,000		55,000	680,000
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	11,318		20,896		21,621		21,900		22,373		21,864		23,198		24,310		36,211		30,068		35,073		32,040		26,171		27,081		31,750		32,223	626,157
8	GAS VOLUME INTO STATION (MMCFD)	3,393.6		2,386.8		3,380.2		3,373.6		3,367.0		3,360.3		3,353.6		3,348.8		3,344.0		3,336.7		3,330.0		3,322.7		3,316.0		3,309.0		3,301.7		3,295.3	
9	STATION FUEL GAS (MMCFD)	7.0		6.4		6.6		6.6		6.7		6.7		6.7		4.8		7.3		6.7		7.3		6.7		7.0		7.3		6.4		7.0	-05.3
10	GAS VOLUME OUT OF STATION (MMCFD)	3386.6		3,380.2		3 373.6		3 367.0		3,360.3		3 353.6		1,348.8		3,344.0		3,336.7		3,330.0		3,322.7		3,316.0		3,309.0		3,301.7		3,295.3		3,288.3	
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)	1,543.0		1,411.5		1,402.3		1,399.0		1,393.5		1,401.1		1,353.5		1,385.9		1,277.4		1,364.5		1,312.5		1,367.8		1,347.2		1,343.0		1,397.2		1,338.4	
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)	1,699.9		1,699.9		1,699.8		1,699.8		1,699.8		1,699.8		1,700.0		1,697.5		1,697.7		1,701.0		1,701.0		1,701.0		1,701.0		1,700.9		1,700.9		1,700.9	
13	GAS COMPRESSION RATIO	1.100		1.200		1.210		1.220		1.220		1.210		1.220		1.220		1.330		1.250		1.290		1.240		1.240		1.290		1.220		1.270	
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)	16.4		3.3		3.0		3.2		3.4		4.8		3.1		13.4		17.1		36.6		36.8		41.6		38.6		35.0		43.1		37.9	
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)	28.5		26.4		26.9		27.5		28.2		29.0		29.1		39.6		55.4		47.1		72.2		71.9		70.5		70.4		70.4		71.2	
16	STATION OUTLET GAS TEMPERATURE (°F)	14.9		15.3		14.6		14.8		15.1		15.7		28.9		39.5		55.3		60.7		60.6		60.5		60.4		60.2		60.2		60.0	
17	CHILLING/COOLING DUTY (TONS) REQUIRED	6,888		5,759		6,404		6,582		6,752		6,824		0		0		0		2,925		5,337		5,724		4,830		4,800		4,632		5,021	71,943
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED	2		1		1		1		1		1		1		0		0		0		0		0		0		0		0		0	8
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	17,000		17,000		17,000		17,000		17,000		17,000		17,000		0		0		0		0		0		0		0		0		0	
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED	34,000		17,000		17,000		17,000		17,000		17,000		17,000		0		0		0		0		0		0		0		0		0	36,000
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	12,840		6,820		6,775		6,814		7,114		7,195		0		0		0		0		0		0		0		0		0		0	47,458



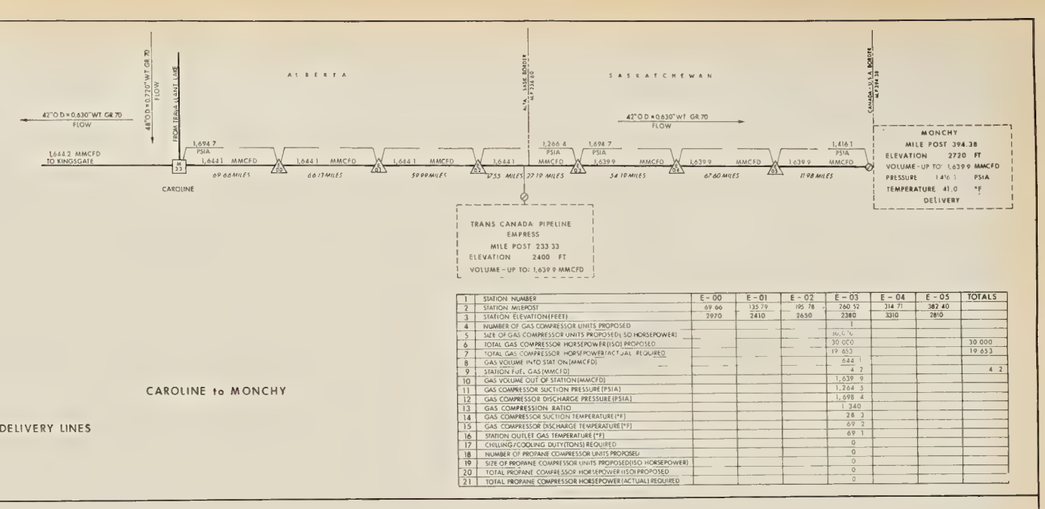
		M-01	M-02	TOTALS
1	STATION NUMBER			
2	STATION MILEPOST	39.20	94.40	
3	STATION ELEVATION (FEET)	470	320	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED			
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED			
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			
8	GAS VOLUME INTO STATION (MMCFD)			
9	STATION FUEL GAS (MMCFD)			
10	GAS VOLUME OUT OF STATION (MMCFD)			
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)			
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)			
13	GAS COMPRESSION RATIO			
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)			
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)			
16	STATION OUTLET GAS TEMPERATURE (°F)			
17	CHILLING/COOLING DUTY (TONS) REQUIRED			
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			

S ISLAND to TRAVAILLANT LAKE



		K-00	K-01	K-02	K-03	TOTALS
1	STATION NUMBER					
2	STATION MILEPOST	59.40	119.75	179.84	246.80	
3	STATION ELEVATION (FEET)	4170	4400	4930	4230	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED					
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)					
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED					
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED					
8	GAS VOLUME INTO STATION (MMCFD)					
9	STATION FUEL GAS (MMCFD)					
10	GAS VOLUME OUT OF STATION (MMCFD)					
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)					
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)					
13	GAS COMPRESSION RATIO					
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)					
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)					
16	STATION OUTLET GAS TEMPERATURE (°F)					
17	CHILLING/COOLING DUTY (TONS) REQUIRED					
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED					
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)					
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED					
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED					

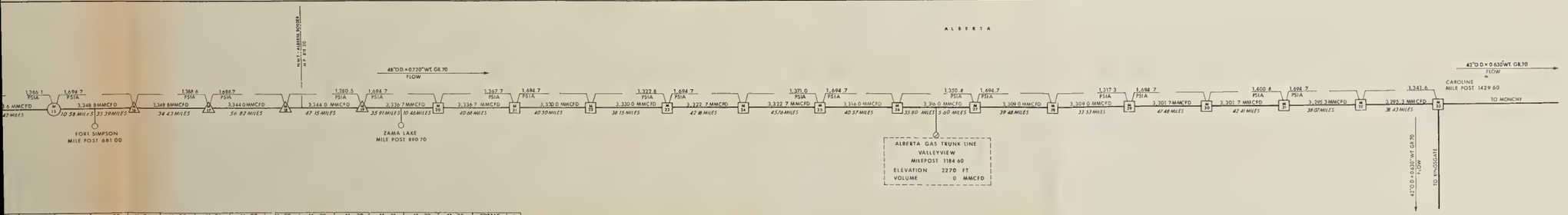
CAROLINE to KINGSGATE



		E-00	E-01	E-02	E-03	E-04	E-05	TOTALS
1	STATION NUMBER							
2	STATION MILEPOST	69.66	133.79	193.78	260.92	314.71	382.40	
3	STATION ELEVATION (FEET)	2970	2410	2650	2380	3310	2810	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED				1			
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)				30 000			
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED				30 000			30 000
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED				19 653			19 653
8	GAS VOLUME INTO STATION (MMCFD)				644.1			
9	STATION FUEL GAS (MMCFD)				4.2			4.2
10	GAS VOLUME OUT OF STATION (MMCFD)				1,639.9			
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)				1,264.5			
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)				1,698.4			
13	GAS COMPRESSION RATIO				1.340			
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)				28.3			
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)				69.2			
16	STATION OUTLET GAS TEMPERATURE (°F)				69.1			
17	CHILLING/COOLING DUTY (TONS) REQUIRED				0			
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED				0			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)				0			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED				0			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED				0			

CAROLINE to MONCHY

GAS DELIVERY LINES



	M-21	M-22	M-23	M-24	M-25	M-26	M-27	M-28	M-29	M-30	M-31	M-32	M-33	TOTALS	
	941.84	957.14	1020.29	1062.47	1108.73	1148.80	1190.20	1229.68	1263.21	1310.69	1353.10	1391.17	1429.60		2
	1470	1790	2540	2520	1860	2120	2140	2600	4000	3050	2850	3400	3880		3
	2		2		2		2		2		2		2	24	4
	27,500		27,500		27,500		27,500		27,500		27,500		27,500		5
	55,000		55,000		55,000		55,000		55,000		55,000		55,000	660,000	6
	30 066		35 073		30,272		32,060		35,171		27,091		21,730	426,107	7
	3,336 7		3,330 0		3,702 7		3,316 0		3,209 0		3,301 7		3,295 3		8
	6.7		7 3		6.7		7 0		7 3		6 4		7 0	105 3	9
	3,330 0		3,322 7		3,316 0		3,309 0		3,301 7		3,295 3		3,288 3		10
	1,364 5		1,319 3		1,367 8		1,347 7		1,314 0		1,397 2		1,338 4		11
	1,701 0		1,701 0		1,701 0		1,701 0		1,700 9		1,700 9		1,700 9		12
	1,250		1,240		1,240		1,260		1,290		1,220		1,270		13
	36.6		36.8		41.6		38.6		35.0		42.1		37.9		14
	67.1		72.2		71.9		71.0		70.9		70.4		71.2		15
	60.7		60.5		60.4		60.4		60.3		60.2		60.0		16
	2,925		5,332		5,224		4,830		4,800		4,622		5,021	71,943	17
	0		0		0		0		0		0		0	8	18
	0		0		0		0		0		0		0		19
	0		0		0		0		0		0		0	136,000	20
	0		0		0		0		0		0		0	67,458	21

TRAVAILLANT LAKE to CAROLINE

MAINLINE

LEGEND

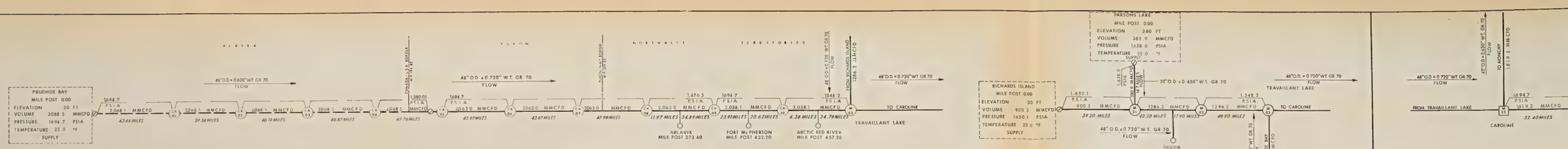
- PIPELINE
- STATION WITH CENTRIFUGAL - GAS TURBINE GAS COMPRESSION & CENTRIFUGAL - GAS TURBINE PROPANE COMPRESSION FOR GAS CHILLING
- STATION WITH CENTRIFUGAL - GAS TURBINE GAS COMPRESSION & GAS TO AIR DIRECT HEAT EXCHANGE FOR GAS COOLING
- STATION WITH CENTRIFUGAL - GAS TURBINE GAS COMPRESSION
- GAS MEASUREMENT STATION
- 693 PSIA — PIPELINE PRESSURE
- 432.1 MMCFD — GAS FLOWING VOLUME (14.73 PSIA & 60°F)
- SIDE VALVE FOR FUTURE DELIVERIES

DESIGNED BY	
DRAWN BY	
CHECKED BY	
ENGINEERS APPROVAL	
PROJECT MANAGER	

NORTHERN ENGINEERING SERVICES COMPANY LIMITED
CALGARY, ALBERTA
ENGINEERS FOR
CANADIAN ARCTIC GAS PIPELINE LIMITED

FLOW DIAGRAM
MAXIMUM CAPACITY
AVERAGE WINTER CONDITIONS - OPERATING YEAR 2

SCALE
DATE
PROJECT No.
SECTION 1 - 3
REV.



	STATION NUMBER	CA-01	CA-02	CA-03	CA-04	CA-05	CA-06	CA-07	CA-08	CA-09	CA-10	TOTALS	
1	STATION NUMBER	4744	82.98	129.17	170.04	223.80	269.77	313.44	361.83	408.29	432.82		1
2	STATION MILEPOST	150	690	310	290	290	120	300	60	30	150		2
3	STATION ELEVATION (FEET)					1						2	3
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED					30000				30,000			4
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)					30,000				30,000		60,000	5
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED					14772				9,797		24,569	6
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED					2068.5				2,063.0			7
8	GAS VOLUME INTO STATION (MMCFD)					5.5				4.9		10.4	8
9	STATION FUEL GAS (MMCFD)					2063.0				2058.1			9
10	GAS VOLUME OUT OF STATION (MMCFD)					1379.4				1472.3			10
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)					1696.8				1696.7			11
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)					1230				1150			12
13	GAS COMPRESSION RATIO					1.75				2.09			13
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)					43.9				39.4			14
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)					25.0				25.0			15
16	STATION OUTLET GAS TEMPERATURE (°F)					6213				4418		10631	16
17	CHILLING / COOLING DUTY (TONS) REQUIRED					1				1		2	17
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED					17000				17000		34000	18
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)					17000				17000		34000	19
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED					8116				8311		16,427	20
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED												21

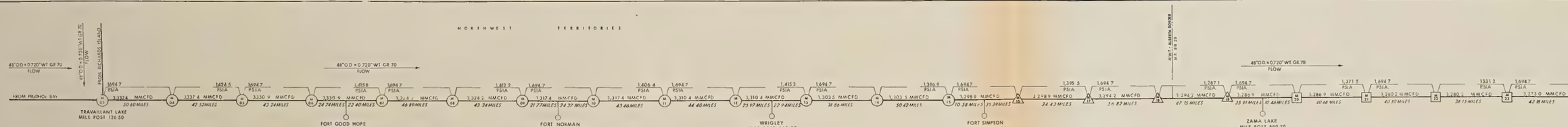
PRUDHOE BAY to TRAVAILLANT LAKE
(COASTAL ROUTE)

RICHARDS ISLAND to TRAVAILLANT LAKE

GAS SUPPLY LINES

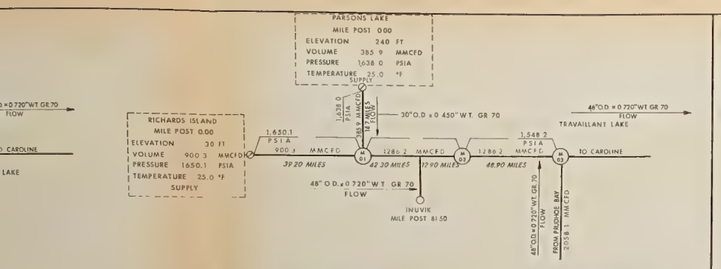
	STATION NUMBER	M-01	M-02	TOTALS
1	STATION NUMBER			
2	STATION MILEPOST	39.20	94.40	
3	STATION ELEVATION (FEET)	470	320	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED			
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED			
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			
8	GAS VOLUME INTO STATION (MMCFD)			
9	STATION FUEL GAS (MMCFD)			
10	GAS VOLUME OUT OF STATION (MMCFD)			
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)			
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)			
13	GAS COMPRESSION RATIO			
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)			
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)			
16	STATION OUTLET GAS TEMPERATURE (°F)			
17	CHILLING/COOLING DUTY (TONS) REQUIRED			
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			

	STATION NUMBER	K-00
1	STATION NUMBER	
2	STATION MILEPOST	59.40
3	STATION ELEVATION (FEET)	4170
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED	
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED	
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	
8	GAS VOLUME INTO STATION (MMCFD)	
9	STATION FUEL GAS (MMCFD)	
10	GAS VOLUME OUT OF STATION (MMCFD)	
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)	
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)	
13	GAS COMPRESSION RATIO	
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)	
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)	
16	STATION OUTLET GAS TEMPERATURE (°F)	
17	CHILLING/COOLING DUTY (TONS) REQUIRED	
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED	
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED	
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	



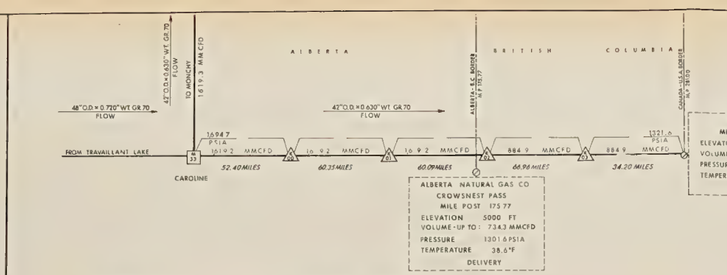
	STATION NUMBER	M-03	M-04	M-05	M-06	M-07	M-08	M-09	M-10	M-11	M-12	M-13	M-14	M-15	M-16	M-17	M-18	TOTALS
1	STATION NUMBER																	
2	STATION MILEPOST	26.50	117.10	219.62	262.86	310.00	356.89	400.23	446.37	489.83	534.23	583.14	620.00	670.42	716.59	750.82	807.64	
3	STATION ELEVATION (FEET)	810	440	530	690	470	310	320	450	700	610	520	1370	930	950	1480	1440	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED	1		1		1		1		1		1		1		1		7
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	30,000		30,000		30,000		10,000		30,000		30,000		30,000		30,000		180,000
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED	30,000		30,000		30,000		10,000		30,000		30,000		30,000		30,000		180,000
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	11,196		19,906		20,492		20,836		21,365		20,712		22,005		23,698		165,010
8	GAS VOLUME INTO STATION (MMCFD)	3,344.3		3,337.4		3,330.9		3,324.2		3,317.4		3,310.4		3,303.5		3,298.9		
9	STATION FUEL GAS (MMCFD)	6.9		6.5		6.7		6.8		7.0		6.9		6.6		4.8		105.5
10	GAS VOLUME OUT OF STATION (MMCFD)	3337.4		3330.9		3324.2		3317.4		3310.4		3303.5		3298.9		3294.2		
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)	1,565.7		1,422.1		1,412.4		1,409.7		1,403.9		1,401.8		1,394.5		1,392.6		
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)	1,699.8		1,699.7		1,699.7		1,699.7		1,699.7		1,699.7		1,699.6		1,697.5		
13	GAS COMPRESSION RATIO	1.100		1.205		1.200		1.210		1.210		1.200		1.220		1.200		
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)	21.9		51		42		47		51		62		62		162		
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)	33.9		272		271		280		290		294		290		420		
16	STATION OUTLET GAS TEMPERATURE (°F)	12.9		19.2		19.2		12.2		12.4		12.8		28.8		41.9		
17	CHILLING/COOLING DUTY (TONS) REQUIRED	9,235		7,494		7,672		8,110		8,494		8,482		0		0		
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED	1		1		1		1		1		1		1		1		0
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	17,000		17,000		17,000		17,000		17,000		17,000		17,000		17,000		0
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED	34,000		17,000		17,000		17,000		17,000		17,000		17,000		17,000		0
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	11,769		7,885		8,348		9,004		9,695		9,822		0		0		0

	STATION NUMBER	M-19	M-20	M-21	M-22	M-23	M-24	M-25	M-26	M-27	M-28	M-29	M-30	M-31	M-32	M-33	TOTALS
1	STATION NUMBER																
2	STATION MILEPOST	854.79	901.16	941.84	982.14	1020.79	1062.47	1108.23	1148.80	1190.70	1229.68	1263.21	1310.69	1353.10	1391.17	1429.60	
3	STATION ELEVATION (FEET)	1810	1100	1470	1790	2540	2520	1860	2130	2140	2600	4000	3050	2850	3400	3860	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED	2		2		2		2		2		2		2		2	24
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	27,500		27,500		27,500		27,500		27,500		27,500		27,500		27,500	
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED	55 000		55 000		55,000		55 000		55 000		55 000		55 000		55 000	680 000
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	35,673		29,901		36,093		29,36		32 057		35,00*		26,225		32 485	415 013
8	GAS VOLUME INTO STATION (MMCFD)	3,294.2		3,286.9		3,280.2		3,273.0		3,266.4		3,259.4		3,252.0		3,245.8	
9	STATION FUEL GAS (MMCFD)	7.3		6.7		7.2		6.6		7.0		7.4		6.2		7.0	105.5
10	GAS VOLUME OUT OF STATION (MMCFD)	3,286.9		3,280.2		3,273.0		3,266.4		3,259.4		3,252.0		3,245.8		3,238.8	
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)	1,284.0		1,108.4		1,328.0		1,376.5		1,351.0		1,289.0		1,404.4		1,343.3	
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)	1,697.7		1,700.9		1,700.9		1,700.9		1,700.9		1700.8		1700.8		1 00.8	
13	GAS COMPRESSION RATIO	1.320		1 240		1 280		1 240		1 260		1 290		1 210		1270	
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)	21.0		41.8		41.8		44.5		44.8		40.9		46.9		43.3	
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)	58.8		72.1		74.8		74.9		77.2		76.6		735		76.2	
16	STATION OUTLET GAS TEMPERATURE (°F)	58.7		61.0		60.6		63.1		63.5		60.3		67.8		61.7	
17	CHILLING/COOLING DUTY (TONS) REQUIRED	0		4,768		0,051		5,094		5 803		6,965		4 351		8,225	89,306
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED	0		0		0		0		0		0		0		0	8
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	0		0		0		0		0		0		0		0	
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED	0		0		0		0		0		0		0		0	136 000
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	0		0		0		0		0		0		0		0	56 003



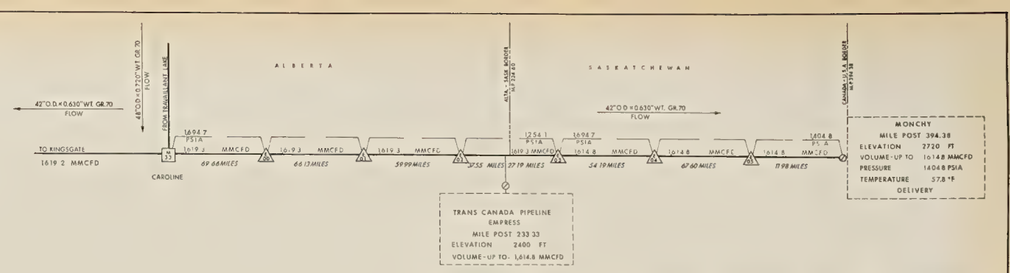
RICHARDS ISLAND to TRAVAILLANT LAKE

	STATION NUMBER	M-01	M-02	TOTALS
1	STATION NUMBER	39.10	94.60	
2	STATION MILEPOST	470	320	
3	STATION ELEVATION (FEET)			
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED			
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED			
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			
8	GAS VOLUME INTO STATION (MMCFD)			
9	STATION FUEL GAS (MMCFD)			
10	GAS VOLUME OUT OF STATION (MMCFD)			
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)			
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)			
13	GAS COMPRESSION RATIO			
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)			
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)			
16	STATION OUTLET GAS TEMPERATURE (°F)			
17	CHILLING/COOLING DUTY (TONS) REQUIRED			
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			



	STATION NUMBER	K-00	K-01	K-02	K-03	TOTALS
1	STATION NUMBER	59.40	119.75	179.84	246.80	
2	STATION MILEPOST	4170	4400	4930	4230	
3	STATION ELEVATION (FEET)					
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED					
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)					
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED					
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED					
8	GAS VOLUME INTO STATION (MMCFD)					
9	STATION FUEL GAS (MMCFD)					
10	GAS VOLUME OUT OF STATION (MMCFD)					
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)					
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)					
13	GAS COMPRESSION RATIO					
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)					
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)					
16	STATION OUTLET GAS TEMPERATURE (°F)					
17	CHILLING/COOLING DUTY (TONS) REQUIRED					
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED					
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)					
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED					
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED					

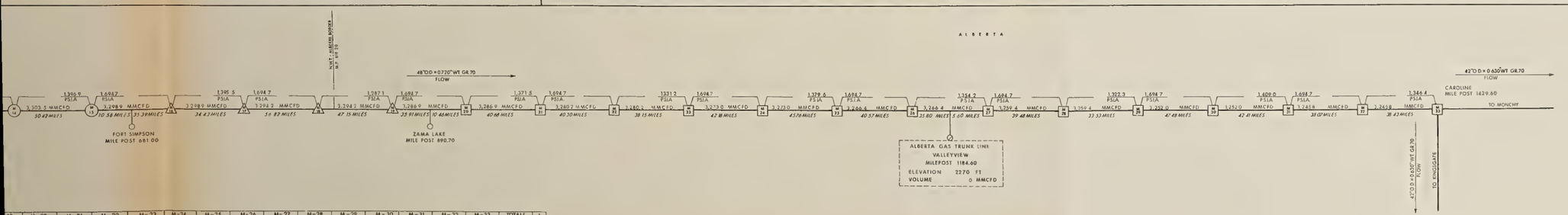
CAROLINE to KINGSGATE



CAROLINE to MONCHY

	STATION NUMBER	E-00	E-01	E-02	E-03	E-04	E-05	TOTALS
1	STATION NUMBER	69.66	135.79	195.78	260.52	314.71	382.40	
2	STATION MILEPOST	3970	3410	3650	2280	3310	2810	
3	STATION ELEVATION (FEET)							
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED							
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)				30,000			
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED				30,000			30,000
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED				21,449			21,449
8	GAS VOLUME INTO STATION (MMCFD)				1619.3			
9	STATION FUEL GAS (MMCFD)				4.5			4.5
10	GAS VOLUME OUT OF STATION (MMCFD)				0-4.8			
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)				1252.1			
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)				1698.8			
13	GAS COMPRESSION RATIO				1360			
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)				43.7			
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)				88.3			
16	STATION OUTLET GAS TEMPERATURE (°F)				88.3			
17	CHILLING/COOLING DUTY (TONS) REQUIRED				0			
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED				0			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)				0			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED				0			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED				0			

GAS DELIVERY LINES



	M-19	M-20	M-21	M-22	M-23	M-24	M-25	M-26	M-27	M-28	M-29	M-30	M-31	M-32	M-33	TOTALS	
	1396.9 PSIA	1,694.7 PSIA	1,395.5 PSIA	1,694.7 PSIA	1,287.1 PSIA	1,694.7 PSIA	1,371.5 PSIA	1,694.7 PSIA	1331.2 PSIA	1,694.7 PSIA	1,379.6 PSIA	1,694.7 PSIA	1,354.2 PSIA	1,694.7 PSIA	1,346.4 PSIA		
1	3,303.5 MMCFD	3,298.9 MMCFD	3,298.9 MMCFD	3,294.2 MMCFD	3,294.2 MMCFD	3,286.9 MMCFD	3,286.9 MMCFD	3,280.2 MMCFD	3,280.2 MMCFD	3,223.0 MMCFD	3,223.0 MMCFD	3,208.9 MMCFD	3,266.4 MMCFD	3,259.4 MMCFD	3,245.8 MMCFD		2
2	50.42 MILES	10.58 MILES	34.43 MILES	36.82 MILES	47.15 MILES	35.91 MILES	10.46 MILES	40.68 MILES	38.15 MILES	42.18 MILES	45.76 MILES	40.57 MILES	25.80 MILES	5.00 MILES	38.43 MILES		3
3																24	4
4			27,500		27,500		27,500		27,500		27,500		27,500		27,500		5
5			55,000		55,000		55,000		55,000		55,000		55,000		55,000	680,000	6
6			29,901		34,093		29,361		32,057		35,007		26,225		32,483	415,013	7
7			3,286.9		3,280.2		3,273.0		3,266.4		3,259.4		3,252.0		3,245.8		8
8			6.7		7.2		6.6		7.0		7.4		6.2		7.0	105.5	9
9			3,280.2		3,273.0		3,266.4		3,259.4		3,252.0		3,245.8		3,238.8		10
10			1,368.4		1,328.0		1,376.5		1,351.0		1,319.0		1,405.9		1,343.3		11
11			1,700.9		1,700.9		1,700.9		1,700.9		1,700.9		1,700.8		1,700.8		12
12			1,240		1,280		1,240		1,260		1,290		1,230		1,270		13
13			41.8		41.8		45.2		44.8		40.9		46.9		43.3		14
14			72.1		74.8		74.9		77.2		76.6		73.5		76.4		15
15			61.1		60.7		63.1		63.3		60.3		62.8		61.7		16
16			4,768		6,091		5,089		5,803		6,965		6,515		6,925	89,266	17
17			0		0		0		0		0		0		0	8	18
18			0		0		0		0		0		0		0		19
19			0		0		0		0		0		0		0	136,000	20
20			0		0		0		0		0		0		0	56,000	21

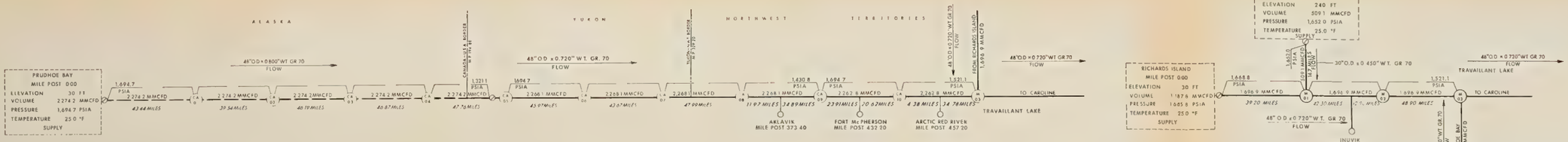
TRAVAILLANT LAKE to CAROLINE

MAINLINE

LEGEND

- PIPELINE
- STATION WITH CENTRIFUGAL-GAS TURBINE GAS COMPRESSION & CENTRIFUGAL - GAS TURBINE PROPANE COMPRESSION FOR GAS CHILLING
- STATION WITH CENTRIFUGAL-GAS TURBINE GAS COMPRESSION & GAS TO AIR DIRECT HEAT EXCHANGE FOR GAS COOLING
- STAT ON WITH CENTRIFUGAL - GAS TURBINE GAS COMPRESSION
- GAS MEASUREMENT STATION
- 1695 PSIA — PIPELINE PRESSURE
- 4322 MMCFD — GAS FLOWING VOLUME (14.73 PSIA & 60°F)
- SIDE VALVE FOR FUTURE DELIVERIES

DESIGNED BY	NORTHERN ENGINEERING SERVICES COMPANY LIMITED CALGARY, ALBERTA ENGINEERS FOR
DRAWN BY	CANADIAN ARCTIC GAS PIPELINE LIMITED
CHECKED BY	FLOW DIAGRAM
ENGINEER, APPR'VAL	MAXIMUM CAPACITY
PROJECT MANAGER	AVERAGE SUMMER CONDITIONS - OPERATING YEAR 2
	SECTION 1-4
	SCALE
	DATE
	PROJECT No.
	REV.



	STATION NUMBER	CA-01	CA-02	CA-03	CA-04	CA-05	CA-06	CA-07	CA-08	CA-09	CA-10	TOTALS	
1	STATION NUMBER	4344	82.98	129.17	176.04	223.80	269.77	313.44	361.43	408.29	452.82		1
2	STATION MILEPOST	150	690	510	290	250	120	300	60	30	150		2
3	STATION ELEVATION (FEET)									1		2	3
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED					30 000				30 000			4
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)					30,000				30 000		60 000	5
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED					19 070				12 737		31,807	6
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED					2,274 2				2,268 1			7
8	GAS VOLUME INTO STATION (MMCFD)					6 1				5 3		11 4	8
9	STATION FUEL GAS (MMCFD)					2 268 1				2 262 8			9
10	GAS VOLUME OUT OF STATION (MMCFD)					1,219 8				1 429 6			10
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)					1,697 2				1,697 1			11
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)					1 290				1 190			12
13	GAS COMPRESSION RATIO					9 0				1 3 1			13
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)					40 7				34 2			14
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)					25 0				25 0			15
16	STATION OUTLET GAS TEMPERATURE (°F)					5,899				3,341		9 040	16
17	CHILLING / COOLING DUTY (TONS) REQUIRED									1		2	17
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED					17 000				17 000			18
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)					17 000				17 000		34 000	19
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED					8,123				8,311		16,434	20
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED												21

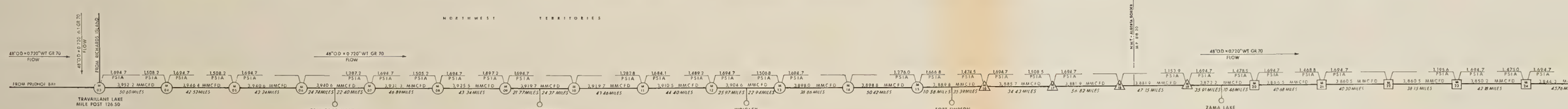
PRUDHOE BAY to TRAVAILLANT LAKE
(COASTAL ROUTE)

GAS SUPPLY LINES

RICHARDS ISLAND to TRAVAILLANT LAKE

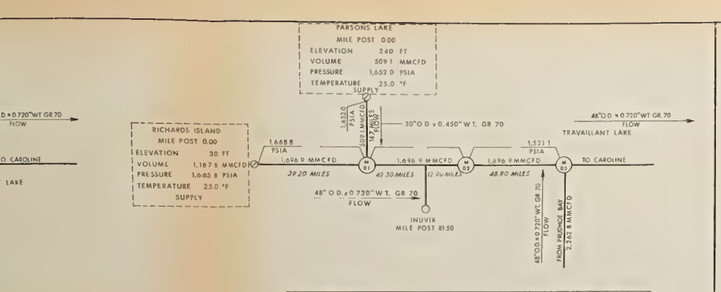
	STATION NUMBER	M-01	M-02	TOTALS	
1	STATION NUMBER				1
2	STATION MILEPOST	39 20	94 40		2
3	STATION ELEVATION (FEET)	470	320		3
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED				4
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)				5
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED				6
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED				7
8	GAS VOLUME INTO STATION (MMCFD)				8
9	STATION FUEL GAS (MMCFD)				9
10	GAS VOLUME OUT OF STATION (MMCFD)				10
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)				11
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)				12
13	GAS COMPRESSION RATIO				13
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)				14
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)				15
16	STATION OUTLET GAS TEMPERATURE (°F)				16
17	CHILLING/COOLING DUTY (TONS) REQUIRED				17
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED				18
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)				19
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED				20
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED				21

	STATION NUMBER	K-00
1	STATION NUMBER	
2	STATION MILEPOST	59.40
3	STATION ELEVATION (FEET)	4170
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED	
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED	
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	
8	GAS VOLUME INTO STATION (MMCFD)	
9	STATION FUEL GAS (MMCFD)	
10	GAS VOLUME OUT OF STATION (MMCFD)	
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)	
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)	
13	GAS COMPRESSION RATIO	
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)	
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)	
16	STATION OUTLET GAS TEMPERATURE (°F)	
17	CHILLING/COOLING DUTY (TONS) REQUIRED	
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED	
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED	
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	



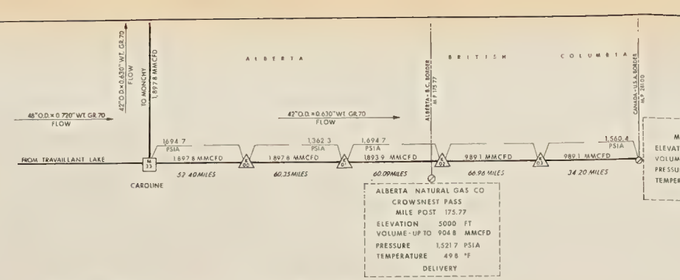
	STATION NUMBER	M-03	M-04	M-05	M-06	M-07	M-08	M-09	M-10	M-11	M-12	M-13	M-14	M-15	M-16	M-17	M-18	TOTALS
1	STATION NUMBER																	
2	STATION MILEPOST	126 50	177 10	219 62	262 86	310 00	356 89	400 23	446 37	489 83	534 23	583 14	620 00	670 42	716 39	750 82	807 64	
3	STATION ELEVATION (FEET)	810	440	530	690	470	310	520	450	700	810	520	1370	930	950	1480	1440	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED	1	1	1		1	1	1		1	1	1		1	1	1		
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	30,000	30,000	30,000		30,000	30,000	30,000		30,000	30,000	30,000		30,000	30,000	30,000		
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED	30,000	30,000	30,000		30,000	30,000	30,000		30,000	30,000	30,000		30,000	30,000	30,000		
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	15,640	15,518	15,864		16,994	16,143	16,780		16,582	17,484	15,957		16,778	18,310	16,230		
8	GAS VOLUME INTO STATION (MMCFD)	3,959.7	3,952.2	3,946.4		3,940.6	3,931.3	3,925.5		3,919.7	3,910.5	3,904.6		3,898.8	3,889.8	3,885.7		
9	STATION FUEL GAS (MMCFD)	7.5	5.8	5.8		9.3	5.8	5.8		9.2	5.9	5.8		9.0	4.1	3.8		
10	GAS VOLUME OUT OF STATION (MMCFD)	3,952.2	3,946.4	3,940.6		3,931.3	3,925.5	3,919.7		3,910.5	3,904.6	3,898.8		3,889.8	3,885.7	3,881.9		
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)	1,517.6	1,498.5	1,505.0		1,282.4	1,501.9	1,494.0		1,279.1	1,485.9	1,503.6		1,272.3	1,474.5	1,464.7		
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)	1,701.8	1,701.6	1,701.6		1,701.8	1,701.6	1,701.5		1,691.2	1,701.5	1,701.5		1,673.9	1,698.2	1,698.3		
13	GAS COMPRESSION RATIO	1-120	1-140	1-130		1-330	1-130	1-160		1-320	1-150	1-130		1-320	1-150	1-130		
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)	15.2	6.8	6.6		-4.1	7.1	6.5		- 3.6	6.7	7.9		- 3.8	6.6	14.8		
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)	29.5	22.3	21.4		31.4	22.3	22.3		31.6	23.3	22.9		31.1	24.2	29.9		
16	STATION OUTLET GAS TEMPERATURE (°F)	14.9	15.0	15.3		14.6	15.2	14.8		15.1	14.8	15.7		14.7	24.1	29.8		
17	CHILLING/COOLING DUTY (TONS) REQUIRED	8,665	6,380	3,661		10,056	4,231	4,504		9,829	5,040	6,782		9,665	0	0		
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED	2	1	1		1	1	1		1	1	1		1	0	0		
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	17,000	17,000	17,000		17,000	17,000	17,000		17,000	17,000	17,000		17,000	0	0		
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED	34,000	17,000	17,000		17,000	17,000	17,000		17,000	17,000	17,000		17,000	0	0		
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	11,877	6,741	6,880		12,168	6,785	6,704		11,294	6,624	6,829		10,870	0	0		

	STATION NUMBER	M-19	M-20	M-21	M-22	M-23	M-24	M-25	M-26	M-27	M-28	M-29	M-30	M-31	M-32	M-33	TOTALS
1	STATION NUMBER																
2	STATION MILEPOST	854 79	901 16	941 84	982 14	1020 29	1062 47	1108 23	1148 80	1190 20	1229 68	1263 21	1310 69	1353 10	1391 17	1429 60	
3	STATION ELEVATION (FEET)	1810	1100	1470	1790	2540	2520	1860	2130	2140	2600	4000	3050	2850	3400	3640	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED	2	2	2		2	2	2		2	2	2		2	2	2	36
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	27,500	27,500	27,500		27,500	27,500	27,500		27,500	27,500			27,500	27,500	27,500	
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED	55,000	55,000	55,000		55,000	55,000	55,000		55,000	55,000	55,000		55,000	55,000	55,000	1010 000
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	55,318	22,628	24,197		57,947	23,615	23,502		54,5 7	24,390	25,10		49,116	23,790	25,037	665,238
8	GAS VOLUME INTO STATION (MMCFD)	3,881.9	3872.2	3,860.5		3,860.5	3,850 2	3,844 3		3,8 8 6	3 828 7	3,82 2 7		2,816 6	3 807 4	3,80 5	
9	STATION FUEL GAS (MMCFD)	9 7	5 7	6 0		10 3	5 9	5 7		9 9	6 0	6		9 2	5 9	5 8	1640
10	GAS VOLUME OUT OF STATION (MMCFD)	3,872 2	3,866 5	3,860 5		3,850 2	3,844 3	3,838 6		3,828 7	3,822 7	3,816 6		3,8 7 4	3 801 5	3,795 7	
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)	1,169 5	1,474 5	1,464 7		1,190 7	1,471 0	1,461 8		1,216 ,	1,46 9	1,449 8		1,2 5 5 8	1,46 5 9	1,472 4	
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)	1,698.7	1,702.1	1,702.2		1,702.4	1,702.1	1,701.1		1,703 ,	1,702 3	1,702 9		1,702 7	1,702 9	1,702 9	
13	GAS COMPRESSION RATIO	1-480	1-150	1-160		1-430	1-160	1-90		1-400	1-160	1-170		1-360	1-160	1-160	
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)	0.2	41.6	47.0		30.2	48 1	49.5		39 7	68 0	67 0		36 5	47 0	47 3	
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)	52.3	61.2	68.4		80.5	68 4	68 8		79 7	68 0	67 0		79 4	67 7	67 3	
16	STATION OUTLET GAS TEMPERATURE (°F)	52.2	60.7	60.7		60.6	60.5	60.5		60 4	60 3	60 2		60 2	60 1	60 0	
17	CHILLING/COOLING DUTY (TONS) REQUIRED	0	91	4088		10,431	4,093	4,336		9,904	3960	3,454		9,828	3,873	3 7 1 9	122,130
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED	0	0	0		0	0	0		0	0	0		0	0	0	11
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	0	0	0		0	0	0		0	0	0		0	0	0	
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED	0	0	0		0	0	0		0	0	0		0	0	0	187 000
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	0	0	0		0	0	0		0	0	0		0	0	0	86,722



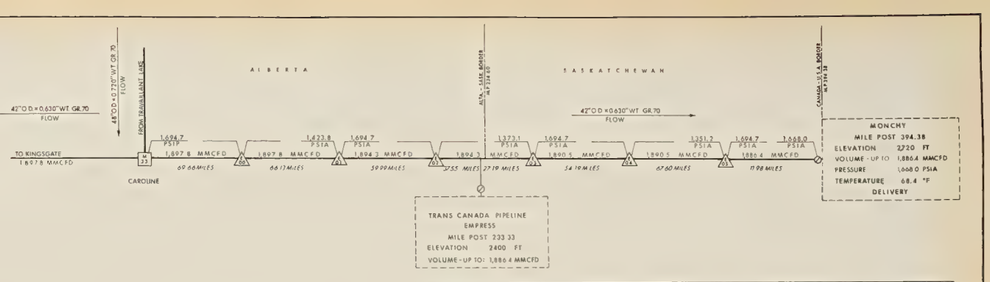
	STATION NUMBER	M-01	M-02	TOTALS
1	STATION NUMBER			
2	STATION MILEPOST	39.20	94.40	
3	STATION ELEVATION (FEET)	470	320	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED			
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED			
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			
8	GAS VOLUME INTO STATION (MMCFD)			
9	STATION FUEL GAS (MMCFD)			
10	GAS VOLUME OUT OF STATION (MMCFD)			
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)			
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)			
13	GAS COMPRESSION RATIO			
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)			
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)			
16	STATION OUTLET GAS TEMPERATURE (°F)			
17	CHILLING/COOLING DUTY (TONS) REQUIRED			
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			

RICHARDS ISLAND to TRAVAILLANT LAKE



	STATION NUMBER	K-00	K-01	K-02	K-03	TOTALS
1	STATION NUMBER					
2	STATION MILEPOST	59.40	119.75	179.64	246.80	
3	STATION ELEVATION (FEET)	4170	4400	4930	4230	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED		1			1
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)		30,000			
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED		30,000			30,000
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED		17,209			17,209
8	GAS VOLUME INTO STATION (MMCFD)		1,897.8			
9	STATION FUEL GAS (MMCFD)		39			39
10	GAS VOLUME OUT OF STATION (MMCFD)		1,893.9			
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)		1,359.9			
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)		1,699.3			
13	GAS COMPRESSION RATIO		1.250			
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)		35.3			
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)		68.1			
16	STATION OUTLET GAS TEMPERATURE (°F)		66.0			
17	CHILLING / COOLING DUTY (TONS) REQUIRED		0			
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED		0			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)		0			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED		0			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED		0			

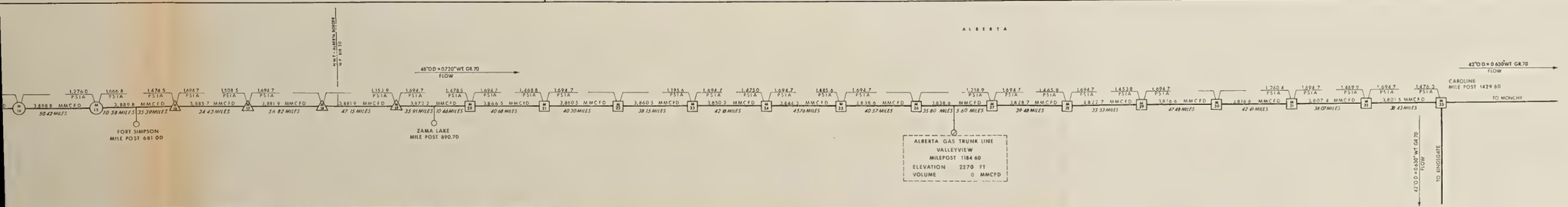
CAROLINE to KINGSGATE



	STATION NUMBER	E-00	E-01	E-02	E-03	E-04	E-05	TOTALS
1	STATION NUMBER							
2	STATION MILEPOST	69.66	133.79	195.78	260.32	314.71	357.40	
3	STATION ELEVATION (FEET)	2970	2410	2650	2380	3310	2810	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED		1		1		1	3
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)		30,000		30,000		30,000	
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED		30,000		30,000		30,000	90,000
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED		16,717		16,717		18,175	48,661
8	GAS VOLUME INTO STATION (MMCFD)		1,897.8		1,894.3		1,890.5	
9	STATION FUEL GAS (MMCFD)		3.5		3.8		4.1	11.4
10	GAS VOLUME OUT OF STATION (MMCFD)		1,894.3		1,890.5		1,886.4	
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)		1,421.0		1,370.8		1,348.8	
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)		1,699.5		1,699.5		1,699.6	
13	GAS COMPRESSION RATIO		1.200		1.240		1.260	
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)		38.9		37.9		39.4	
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)		62.4		67.7		71.6	
16	STATION OUTLET GAS TEMPERATURE (°F)		63.3		67.6		71.5	
17	CHILLING / COOLING DUTY (TONS) REQUIRED		0		0		0	
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED		0		0		0	
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)		0		0		0	
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED		0		0		0	
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED		0		0		0	

CAROLINE to MONCHY

GAS DELIVERY LINES



	M-19	M-20	M-21	M-22	M-23	M-24	M-25	M-26	M-27	M-28	M-29	M-30	M-31	M-32	M-33	TOTALS	
1	58.79	90116	941.84	982.14	1020.29	1062.47	1108.23	1148.80	1190.20	1229.68	1263.21	1310.69	1353.10	1391.17	1429.60		2
2	1010	1100	1670	1790	2540	2520	1860	2130	2140	2400	4000	3050	2850	3400	3850		3
3	7	7	7		2	2	2		2	2	2		2	2	2	36	4
4	500	27,500	27,500		27,500	27,500	27,500		27,500	27,500	27,500		27,500	27,500	27,500		5
5	050	55,000	55,000		55,000	53,000	55,000		55,000	55,000	55,000		55,000	55,000	55,000	1,030,000	6
6	9	20,128	24,397		57,947	23,615	22,502		54,517	24,390	35,101		49,116	23,790	23,037	665,238	7
7	881.9	2872.2	3,860.5		3,860.5	3,850.2	3,844.3		3,838.6	3,828.7	3,822.7		3,816.6	3,807.4	3,801.5		8
8	9.7	5.7	6.0		10.3	5.9	5.7		9.9	6.0	6.1		9.2	5.9	5.8	164.0	9
9	872.2	3,866.5	3,860.5		3,850.2	3,844.3	3,838.6		3,828.7	3,822.7	3,816.6		3,807.4	3,801.5	3,795.7		10
10	849.5	1,674.5	1,454.7		1,190.7	1,471.0	1,481.6		1,246.2	1,461.9	1,255.8		1,465.9	1,469.8	1,472.4		11
11	698.2	1,703.1	1,702.2		1,703.4	1,703.1	1,703.1		1,703.2	1,702.0	1,702.9		1,703.1	1,702.9	1,702.9		12
12	480	1,350	1,160		1,430	1,360	1,350		1,400	1,160	1,170		1,360	1,160	1,160		13
13	0.5	4.6	4.76		3.0.2	48.1	49.5		32.1	46.9	44.8		36.5	47.0	47.3		14
14	5.3	61.2	68.4		80.5	68.4	68.8		79.7	68.0	67.0		79.4	67.7	67.3		15
15	72.3	60.7	60.7		80.6	60.5	60.5		60.4	60.3	60.3		80.2	60.1	60.0		16
16	0	9.1	4,068		10,431	4,093	4,330		9,964	3,960	3,454		9,828	3,873	3,719	122,130	17
17	6	0	0		— 0	0	0		0	0	0		0	0	0	11	18
18	0	0	0		0	0	0		0	0	0		0	0	0		19
19	0	0	0		0	0	0		0	0	0		0	0	0	187,000	20
20	0	0	0		0	0	0		0	0	0		0	0	0	86,772	21

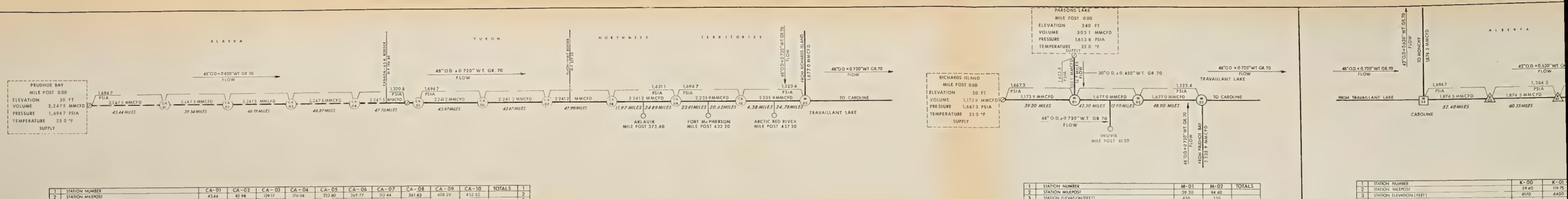
TRAVAILLANT LAKE to CAROLINE

MAINLINE

LEGEND

- PIPELINE
- STATION WITH CENTRIFUGAL-GAS TURBINE GAS COMPRESSION & CENTRIFUGAL-GAS TURBINE PROPANE COMPRESSION FOR GAS CHILLING
- STATION WITH CENTRIFUGAL-GAS TURBINE GAS COMPRESSION & GAS TO GAS DIRECT HEAT EXCHANGE FOR GAS COOLING
- STATION W.TH CENTRIFUGAL-GAS TURBINE GAS COMPRESSION
- GAS MEASUREMENT STATION
- 1695 PSIA — PIPELINE PRESSURE
- 4533 MMCFD — GAS FLOWING VOLUME (14.73 PSIA & 60°F)
- SIDE VALVE FOR FUTURE DELIVERIES

DESIGNED BY	NORTHERN ENGINEERING SERVICES COMPANY LIMITED CALGARY ALBERTA ENGINEERS FOR	
DRAWN BY	CANADIAN ARCTIC GAS PIPELINE LIMITED	SCALE
CHECKED BY	FLOW DIAGRAM MAXIMUM CAPACITY AVERAGE WINTER CONDITIONS - OPERATING YEAR 3	DATE
ENGINEERS APPROVAL		PROJECT No.
PROJECT MANAGER		DRAWING No. SECTION I-5-D REV.



PRUDHOE BAY to TRAVAILLANT LAKE
(COASTAL ROUTE)

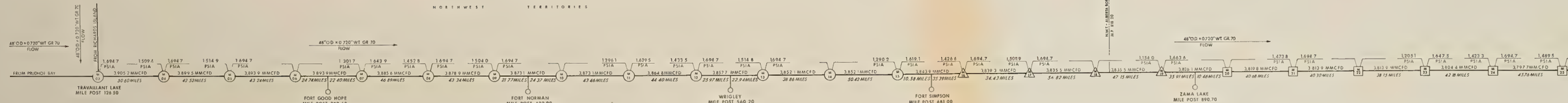
RICHARDS ISLAND to TRAVAILLANT LAKE

GAS SUPPLY LINES

	STATION NUMBER	CA-01	CA-02	CA-03	CA-04	CA-05	CA-06	CA-07	CA-08	CA-09	CA-10	TOTALS	
1	STATION NUMBER	CA-01	CA-02	CA-03	CA-04	CA-05	CA-06	CA-07	CA-08	CA-09	CA-10	TOTALS	1
2	STATION MILEPOST	43.44	82.98	129.17	176.04	223.80	269.77	313.44	361.43	408.29	452.82		2
3	STATION ELEVATION (FEET)	150	690	510	290	290	120	300	60	30	150		3
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED					1				1		2	4
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)					30,000				30,000			5
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED					30,000				30,000		60,000	6
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED					19,619				3,077		22,691	7
8	GAS VOLUME INTO STATION (MMCFD)					2,247.5				2,247.2			8
9	STATION FUEL GAS (MMCFD)					6.3				5.3		11.6	9
10	GAS VOLUME OUT OF STATION (MMCFD)					2,241.2				2,235.9			10
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)					1,319.5				1,429.9			11
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)					1,697.1				1,697.1			12
13	GAS COMPRESSION RATIO					1.290				1.190			13
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)					14.7				18.7			14
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)					47.0				40.2			15
16	STATION OUTLET GAS TEMPERATURE (°F)					25.0				25.0			16
17	CHILLING / COOLING DUTY (TONS) REQUIRED					2,803				5,437		13,240	17
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED					1				1		2	18
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)					17,000				17,000			19
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED					17,000				17,000		34,000	20
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED					8,470				8,169		16,639	21

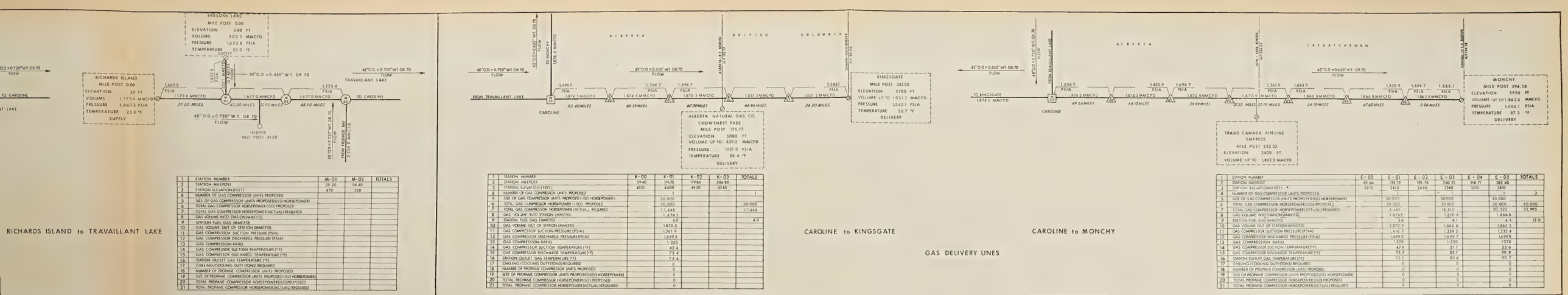
	STATION NUMBER	M-01	M-02	TOTALS
1	STATION NUMBER	M-01	M-02	TOTALS
2	STATION MILEPOST	39.20	94.40	
3	STATION ELEVATION (FEET)	470	370	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED			
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED			
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			
8	GAS VOLUME INTO STATION (MMCFD)			
9	STATION FUEL GAS (MMCFD)			
10	GAS VOLUME OUT OF STATION (MMCFD)			
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)			
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)			
13	GAS COMPRESSION RATIO			
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)			
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)			
16	STATION OUTLET GAS TEMPERATURE (°F)			
17	CHILLING/COOLING DUTY (TONS) REQUIRED			
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			

	STATION NUMBER	K-00	K-01
1	STATION NUMBER	K-00	K-01
2	STATION MILEPOST	59.40	119.25
3	STATION ELEVATION (FEET)	4170	4400
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED		1
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)		30,000
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED		30,000
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED		17,448
8	GAS VOLUME INTO STATION (MMCFD)		3,874
9	STATION FUEL GAS (MMCFD)		4
10	GAS VOLUME OUT OF STATION (MMCFD)		1,870.5
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)		1,361.9
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)		1,699.8
13	GAS COMPRESSION RATIO		1.250
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)		42.4
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)		73.3
16	STATION OUTLET GAS TEMPERATURE (°F)		0.0
17	CHILLING/COOLING DUTY (TONS) REQUIRED		0.0
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED		0
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)		0
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED		0
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED		0



	STATION NUMBER	M-03	M-04	M-05	M-06	M-07	M-08	M-09	M-10	M-11	M-12	M-13	M-14	M-15	M-16	M-17	M-18
1	STATION NUMBER	M-03	M-04	M-05	M-06	M-07	M-08	M-09	M-10	M-11	M-12	M-13	M-14	M-15	M-16	M-17	M-18
2	STATION MILEPOST	126.50	177.10	219.62	262.86	310.00	356.89	400.23	446.37	489.83	534.23	583.16	620.00	670.42	716.39	750.82	807.64
3	STATION ELEVATION (FEET)	810	440	530	690	470	310	510	450	300	810	520	1370	930	950	1480	1440
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED	1	1	1		1	1	1		1	1	1		1	1	1	
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	30,000	30,000	30,000		30,000	30,000	30,000		30,000	30,000	30,000		30,000	30,000	30,000	
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED	30,000	30,000	30,000		30,000	30,000	30,000		30,000	30,000	30,000		30,000	30,000	30,000	
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	15,553	15,591	14,987		30,979	20,696	15,868		3,873.1	3,864.8	3,857.7		3,852.1	3,843.9	3,839.3	
8	GAS VOLUME INTO STATION (MMCFD)	3,912.9	3,905.2	3,899.5		3,893.9	3,885.6	3,878.9									
9	STATION FUEL GAS (MMCFD)	7.7	5.7	5.6		8.3	6.7	5.8		8.3	7.1	5.6		8.2	6.6	3.8	
10	GAS VOLUME OUT OF STATION (MMCFD)	3,905.2	3,899.5	3,893.9		3,885.6	3,878.9	3,873.1		3,864.8	3,857.7	3,852.1		3,843.9	3,839.3	3,835.5	
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)	1,519.9	1,506.2	1,511.7		1,298.1	1,449.6	1,500.8		1,292.5	1,430.2	1,511.7		1,286.6	1,423.3	1,506.6	
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)	1,701.7	1,701.4	1,701.4		1,650.9	1,701.4	1,701.3		1,636.5	1,701.4	1,701.2		1,626.1	1,698.1	1,698.3	
13	GAS COMPRESSION RATIO	1.120	1.130	1.130		1.270	1.170	1.130		1.270	1.190	1.130		1.260	1.190	1.130	
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)	20.2	6.7	5.9		-3.1	5.8	5.7		-2.2	4.9	7.4		-2.9	4.9	18.2	
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)	34.4	21.5	20.2		27.1	25.5	20.9		27.7	26.4	21.7		26.7	26.9	33.4	
16	STATION OUTLET GAS TEMPERATURE (°F)	12.9	12.6	12.7		12.2	12.6	12.2		12.4	12.1	12.8		11.9	26.8	33.3	
17	CHILLING/COOLING DUTY (TONS) REQUIRED	11,787	5,346	4,482		8,872	2,727	5,186		8,994	8,495	5,299		8,693	0	0	
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED	2	1	1		1	1	1		1	1	1		1	0	0	
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	17,000	17,000	17,000		17,000	17,000	17,000		17,000	17,000	17,000		17,000	0	0	
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED	34,000	17,000	17,000		17,000	17,000	17,000		17,000	17,000	17,000		17,000	0	0	
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	12,299	6,358	6,497		10,234	8,498	6,330		10,685	9,772	6,386		10,550	0	0	

	STATION NUMBER	M-19	M-20	M-21	M-22	M-23	M-24	M-25	M-26	M-27	M-28	M-29	M-30	M-31	M-32	M-33	TOTALS
1	STATION NUMBER	M-19	M-20	M-21	M-22	M-23	M-24	M-25	M-26	M-27	M-28	M-29	M-30	M-31	M-32	M-33	TOTALS
2	STATION MILEPOST	836.79	901.16	941.84	982.14	1020.29	1062.67	1108.23	1148.80	1190.20	1239.68	1261.21	1310.69	1353.10	1391.17	1429.60	
3	STATION ELEVATION (FEET)	1810	1100	1470	1790	2340	2320	1860	2130	2140	2600	4000	3050	2850	3400	3880	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED	2	2	2		2	2	2		2	2	2		2	2	2	36
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	27,500	27,500	27,500		27,500	27,500	27,500		27,500	27,500	27,500		27,500	27,500	27,500	1,020,000
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED	55,000	55,000	55,000		55,000	55,000	55,000		55,000	55,000	55,000		47,848	24,092	22,873	656,345
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	53,346	26,822	23,626		51,796	29,679	22,041		51,688	28,948	25,277		3,769.7	3,760.7	3,754.7	
8	GAS VOLUME INTO STATION (MMCFD)	3,835.5	3,826.1	3,819.8		3,813.9	3,804.8	3,797.7		3,792.0	3,782.5	3,775.8		9.0	6.0	5.8	1640
9	STATION FUEL GAS (MMCFD)	9.4	6.3	5.9		9.3	6.7	5.7		5.7	3.8	3.8		1,760.7	1,754.7	1,748.9	
10	GAS VOLUME OUT OF STATION (MMCFD)	3,826.1	3,819.8	3,813.9		3,804.8	3,797.7	3,792.0		3,782.5	3,775.8	3,769.7		1265.9	1,468.4	1,474.9	
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)	1,149.0	1,438.6	1,469.8		1,200.4	1,419.1	1,485.6		1,217.3	1,426.7	1,452.7		1703.1	1,702.8	1,702.7	
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)	1,667.7	1,703.0	1,703.0		1,676.6	1,703.0	1,703.0		1,676.6	1,703.0	1,702.8		1,701.8	1,702.8	1,702.7	
13	GAS COMPRESSION RATIO	1.450	1.180	1.160		1.380	1.200	1.150		1.370	1.190	1.170		1.350	1.160	1.150	
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)	51	44.6	48.8		33.1	49.9	52.1		37.9	52.7	48.5		40.1	53.1	51.2	
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)	55.2	60.7	61.0		54.3	61.6	62.9		55.5	62.8	60.3		53.3	62.8	61.1	
16	STATION OUTLET GAS TEMPERATURE (°F)	55.1	60.7	61.0		61.5	61.6	62.9		61.3	62.8	60.3		63.3	62.8	61.1	
17	CHILLING/COOLING DUTY (TONS) REQUIRED	0	3,547	4,070		8,407	6,822	4,076		8,448	7,246	5,098		8,093	5,490	4,771	140,939
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED	0	0	0		0	0	0		0	0	0		0	0	0	11
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	0	0	0		0	0	0		0	0	0		0	0	0	
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED	0	0	0		0	0	0		0	0	0		0	0	0	187,000
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	0	0	0		0	0	0		0	0	0		0	0	0	87,587



	STATION NUMBER	M-01	M-02	TOTALS
1	STATION NUMBER			
2	STATION MILEPOST	39.20	94.40	
3	STATION ELEVATION (FEET)	470	320	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED			
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED			
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			
8	GAS VOLUME INTO STATION (MMCFD)			
9	STATION FUEL GAS (MMCFD)			
10	GAS VOLUME OUT OF STATION (MMCFD)			
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)			
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)			
13	GAS COMPRESSION RATIO			
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)			
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)			
16	STATION OUTLET GAS TEMPERATURE (°F)			
17	CHILLING/COOLING DUTY (TONS) REQUIRED			
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			

RICHARDS ISLAND to TRAVAILLANT LAKE

	STATION NUMBER	K-00	K-01	K-02	K-03	TOTALS
1	STATION NUMBER					
2	STATION MILEPOST	59.40	119.25	179.84	246.80	
3	STATION ELEVATION (FEET)	6170	4400	4930	4230	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED		1			1
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)		30,000			
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED		30,000			30,000
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED		17,448			17,448
8	GAS VOLUME INTO STATION (MMCFD)		1,874.5			
9	STATION FUEL GAS (MMCFD)		4.0			4.0
10	GAS VOLUME OUT OF STATION (MMCFD)		1,870.5			
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)		1,361.9			
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)		1,695.5			
13	GAS COMPRESSION RATIO		1.250			
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)		42.4			
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)		73.4			
16	STATION OUTLET GAS TEMPERATURE (°F)		73.4			
17	CHILLING/COOLING DUTY (TONS) REQUIRED		0			
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED		0			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)		0			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED		0			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED		0			

CAROLINE to KINGSGATE

	STATION NUMBER	E-00	E-01	E-02	E-03	E-04	E-05	TOTALS
1	STATION NUMBER							
2	STATION MILEPOST	69.66	133.79	195.78	260.52	314.71	382.40	
3	STATION ELEVATION (FEET) *	2970	2410	2630	2360	3310	2810	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED		1		1		1	3
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)		30,000		30,000		30,000	
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED		30,000		30,000		30,000	90,000
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED		4,263		18,310		20,322	52,895
8	GAS VOLUME INTO STATION (MMCFD)		1,874.5		1,870.9		1,866.8	
9	STATION FUEL GAS (MMCFD)		3.6		4.1		4.3	12.0
10	GAS VOLUME OUT OF STATION (MMCFD)		1,870.9		1,866.8		1,862.5	
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)		416.7		1,359.5		1,333.4	
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)		1,699.5		1,699.7		1,699.8	
13	GAS COMPRESSION RATIO		1.200		1.250		1.270	
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)		47.9		51.7		55.6	
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)		73.3		83.7		90.8	
16	STATION OUTLET GAS TEMPERATURE (°F)		73.2		83.6		90.7	
17	CHILLING/COOLING DUTY (TONS) REQUIRED		0		0		0	
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED		0		0		0	
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)		0		0		0	
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED		0		0		0	
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED		0		0		0	

CAROLINE to MONCHY

GAS DELIVERY LINES

M-19	M-20	M-21	M-22	M-23	M-24	M-25	M-26	M-27	M-28	M-29	M-30	M-31	M-32	M-33	TOTALS	
814.79	901.16	941.84	982.14	1020.39	1062.47	1108.23	1148.80	1190.20	1229.68	1263.21	1310.69	1353.10	1391.17	1429.60		1
1810	1100	1470	1790	2540	2520	1860	2120	2140	2100	4000	3050	2850	3400	3880		3
2	2	2		2	2	2		2	2	2		2	2	2	36	4
27,500	27,500	27,500		27,500	27,500	27,500		27,500	27,500	27,500		27,500	27,500	27,500		5
55,000	55,000	55,000		55,000	55,000	55,000		55,000	55,000	55,000		55,000	55,000	55,000	1,020,000	6
26,822	23,626			51,795	29,579	22,041		51,688	28,948	25,277		47,848	24,092	22,873	658,345	7
3,821.1	3,819.8			3,813.9	3,804.8	3,797.7		3,792.0	3,782.5	3,773.8		3,769.7	3,760.7	3,754.7		8
6.3	5.9			9.5	6.7	5.7		9.5	6.7	6.1		9.0	6.0	5.8	164.0	9
3,819.8	3,813.9			3,804.4	3,797.7	3,792.0		3,782.5	3,775.8	3,767.7		3,760.7	3,754.7	3,748.9		10
1,438.6	1,469.8			1,200.4	1,491.1	1,483.6		1,217.3	1,426.7	1,452.7		1,265.9	1,466.4	1,474.9		11
1,703.7	1,703.0			1,656.2	1,703.0	1,703.0		1,672.6	1,703.0	1,702.8		1,703.1	1,702.8	1,702.7		12
1,150	1,180			1,380	1,200	1,150		1,370	1,190	1,170		1,350	1,160	1,150		13
51	44.6			33.3	49.9	52.3		37.9	32.7	48.5		40.1	53.1	51.2		14
55.2	67.9			78.7	75.4	71.3		82.0	77.6	70.6		82.0	74.0	71.1		15
55.1	50.7			61.3	61.8	62.9		65.2	62.8	60.3		65.3	62.8	61.3		16
0	3,547	4,070		8,407	5,822	4,076		8,448	7,246	5,098		8,093	5,480	4,731	140,939	17
0	0	0		0	0	0		0	0	0		0	0	0	11	18
0	0	0		0	0	0		0	0	0		0	0	0		19
0	0	0		0	0	0		0	0	0		0	0	0	187,000	20
0	0	0		0	0	0		0	0	0		0	0	0	87,387	21

TRAVAILLANT LAKE to CAROLINE

MAINLINE

DESIGNED BY
DRAWN BY
CHECKED BY
ENGINEERING APPROVAL
PROJECT MANAGER

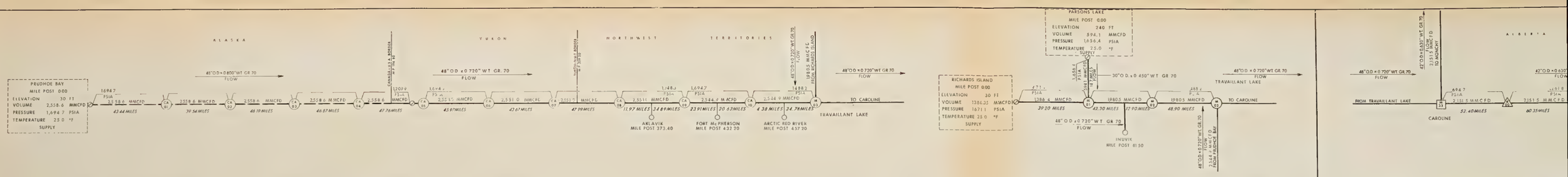
NORTHERN ENGINEERING SERVICES COMPANY LIMITED
CALGARY ALBERTA
ENGINEERS FOR
CANADIAN ARCTIC GAS PIPELINE LIMITED

FLOW DIAGRAM
MAXIMUM CAPACITY
AVERAGE SUMMER CONDITIONS - OPERATING YEAR 3

SCALE
DATE
PROJECT No.

SECTION E-6

REV.



		CA-01	CA-02	CA-03	CA-04	CA-05	CA-06	CA-07	CA-08	CA-09	CA-10	TOTALS	
1	STATION NUMBER	4344	82 98	129 17	176 04	223 80	269 77	313 44	361 43	408 29	452 87		1
2	STATION MILEPOST	150	690	510	290	350	120	300	60	30	350		2
3	STATION ELEVATION (FEET)					1				1		2	3
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED					30000				30000		60000	4
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)					29458				29458		58941	5
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED					2558 6				2551 0		137	6
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED					76				61			7
8	GAS VOLUME INTO STATION (MMCFD)					2551 0				2544 9			8
9	STATION FUEL GAS (MMCFD)					1 208 1				1 246 8			9
10	GAS VOLUME OUT OF STATION (MMCFD)					1697 9				1697 8			10
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)					1410				1269			11
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)					34				91			12
13	GAS COMPRESSION RATIO					470				380			13
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)					250				250			14
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)					8874				5356		14180	15
16	STATION OUTLET GAS TEMPERATURE (°F)					1				1		2	16
17	CHILLING / COOLING DUTY (TONS) REQUIRED					7055				5356		12411	17
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED					17000				17000		34000	18
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)					9351				8112		17463	19
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED												20
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED												21

		M-01	M-02	TOTALS	
1	STATION NUMBER	39 20	94 40		1
2	STATION MILEPOST	470	320		2
3	STATION ELEVATION (FEET)				3
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED				4
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED(ISO HORSEPOWER)				5
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED				6
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED				7
8	GAS VOLUME INTO STATION(MMCFD)				8
9	STATION FUEL GAS (MMCFD)				9
10	GAS VOLUME OUT OF STATION (MMCFD)				10
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)				11
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)				12
13	GAS COMPRESSION RATIO				13
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)				14
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)				15
16	STATION OUTLET GAS TEMPERATURE (°F)				16
17	CHILLING/COOLING DUTY(TONS) REQUIRED				17
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED				18
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED(ISO HORSEPOWER)				19
20	TOTAL PROPANE COMPRESSOR HORSEPOWER(ISO)PROPOSED				20
21	TOTAL PROPANE COMPRESSOR HORSEPOWER(ACTUAL) REQUIRED				21

		K-00	
1	STATION NUMBER	59 40	1
2	STATION MILEPOST	47 0	2
3	STATION ELEVATION (FEET)		3
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED		4
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)		5
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED		6
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED		7
8	GAS VOLUME INTO STATION (MMCFD)		8
9	STATION FUEL GAS (MMCFD)		9
10	GAS VOLUME OUT OF STATION (MMCFD)		10
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)		11
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)		12
13	GAS COMPRESSION RATIO		13
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)		14
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)		15
16	STATION OUTLET GAS TEMPERATURE (°F)		16
17	CHILLING/COOLING DUTY(TONS) REQUIRED		17
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED		18
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED(ISO HORSEPOWER)		19
20	TOTAL PROPANE COMPRESSOR HORSEPOWER(ISO)PROPOSED		20
21	TOTAL PROPANE COMPRESSOR HORSEPOWER(ACTUAL) REQUIRED		21

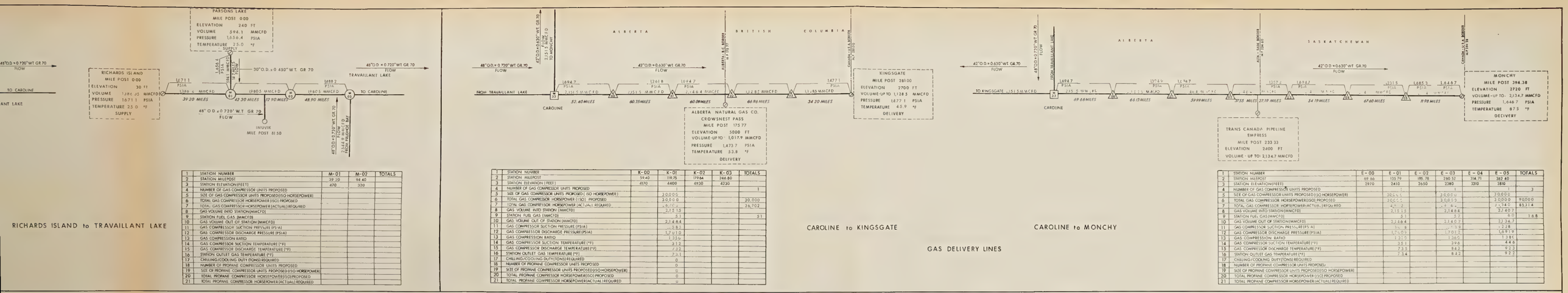
PRUDHOE BAY to TRAVAILLANT LAKE
(COASTAL ROUTE)

RICHARDS ISLAND to TRAVAILLANT LAKE

GAS SUPPLY LINES

		M-03	M-04	M-05	M-06	M-07	M-08	M-09	M-10	M-11	M-12	M-13	M-14	M-15	M-16	M-17	M-18	
1	STATION NUMBER	126 50	177 10	219 60	262 86	310 00	356 89	400 23	446 37	489 83	534 21	583 14	620 00	670 42	716 19	750 82	807 64	1
2	STATION MILEPOST	810	440	530	690	470	310	510	450	700	810	520	1370	930	950	1480	1440	2
3	STATION ELEVATION(FEET)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	27500	4
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	27500	5
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	27500	6
7	TOTAL GAS COMPRESSOR HORSE POWER (ACTUAL) REQUIRED	26457	26457	26268	25823	26084	25546	25346	25549	25772	25772	25772	25772	25772	25772	25772	23428	7
8	GAS VOLUME INTO STATION (MMCFD)	45172	45172	45099	44961	44897	44861	44861	44850	44808	44808	44808	44808	44808	44808	44808	44808	8
9	STATION FUEL GAS(MMCFD)	82	82	70	69	70	71	71	70	70	70	70	70	70	70	70	70	9
10	GAS VOLUME OUT OF STATION (MMCFD)	45172	45172	45099	44961	44897	44861	44861	44850	44808	44808	44808	44808	44808	44808	44808	44808	10
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)	1694.7	1630.4	1694.7	1655.4	1694.7	1638.7	1694.7	1643.6	1694.7	1643.6	1694.7	1643.6	1694.7	1643.6	1694.7	1643.6	11
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)	1697.9	1697.8	1697.8	1697.7	1697.7	1697.7	1697.7	1697.7	1697.7	1697.7	1697.7	1697.7	1697.7	1697.7	1697.7	1697.7	12
13	GAS COMPRESSION RATIO	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	13
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)	37	37	34	37	33	33	32	38	37	41	28	39	37	117	126	126	14
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)	310	247	234	240	227	244	243	247	246	243	241	233	240	227	210	447	15
16	STATION OUTLET GAS TEMPERATURE (°F)	149	150	153	147	146	152	148	154	148	148	147	141	142	236	318	346	16
17	CHILLING/COOLING DUTY (TONS) REQUIRED	10814	6617	5488	6128	6195	6236	6413	6285	6248	6248	6248	6248	6248	6248	6248	6248	17
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	18
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED(ISO HORSEPOWER)	17000	17000	17000	17000	17000	17000	17000	17000	17000	17000	17000	17000	17000	17000	17000	0	19
20	TOTAL PROPANE COMPRESSOR HORSEPOWER(ISO)PROPOSED	34000	17000	17000	17000	17000	17000	17000	17000	17000	17000	17000	17000	17000	17000	17000	0	20
21	TOTAL PROPANE COMPRESSOR HORSEPOWER(ACTUAL)REQUIRED	11188	6958	6862	6879	6963	6829	6753	6676	6768	6768	6768	6707	6837	6837	6837	0	21

		M-19	M-20	M-21	M-22	M-23	M-24	M-25	M-26	M-27	M-28	M-29	M-30	M-31	M-32	M-33	TOTALS	
1	STATION NUMBER	854 79	905 16	941 84	982 14	1002 29	1042 47	1108 23	1148 51	1190 20	1228 68	1263 21	1310 69	1353 30	1399 17	1429 60		1
2	STATION MILEPOST	1810	1100	1470	1790	2540	2520	1860	2130	2140	2600	4000	3050	2850	3400	3580		2
3	STATION ELEVATION(FEET)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	47	3
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED	27500	27500	27500	27500	27500	27500	27500	27500	27500	27500	27500	27500	27500	27500	27500		4
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	55000	55000	55000	55000	55000	55000	55000	55000	55000	55000	55000	55000	55000	55000	55000		5
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED	55000	55000	55000	55000	55000	55000	55000	55000	55000	55000	55000	55000	55000	55000	55000		6
7	TOTAL GAS COMPRESSOR HORSE POWER (ACTUAL) REQUIRED	43035	43816	43768	43768	43768	43768	43768	43768	43768	43768	43768	43768	43768	43768	43768		7
8	GAS VOLUME INTO STATION (MMCFD)	44808	44683	44706	44706	44706	44706	44706	44706	44706	44706	44706	44706	44706	44706	44706		8
9	STATION FUEL GAS(MMCFD)	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70		9
10	GAS VOLUME OUT OF STATION (MMCFD)	44808	44613	44706	44706	44706	44706	44706	44706	44706	44706	44706	44706	44706	44706	44706		10
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)	1694.7	1694.7	1694.7	1694.7	1694.7	1694.7	1694.7	1694.7	1694.7	1694.7	1694.7	1694.7	1694.7	1694.7	1694.7		11
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)	1697.7	1697.7	1697.7	1697.7	1697.7	1697.7	1697.7	1697.7	1697.7	1697.7	1697.7	1697.7	1697.7	1697.7	1697.7		12
13	GAS COMPRESSION RATIO	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20		13
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)	273	420	444	440	431	447	459	439	448	439	424	467	453	451	465		14
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)	472	762	686	686	722	744	774	703	713	695	703	737	703	703	737		15
16	STATION OUTLET GAS TEMPERATURE (°F)	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150		16
17	CHILLING/COOLING DUTY (TONS) REQUIRED	6248	5953	6250	6250	6250	6250	6250	6250	6250	6250	6250	6250	6250	6250	6250		17
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	18
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED(ISO HORSEPOWER)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		19
20	TOTAL PROPANE COMPRESSOR HORSEPOWER(ISO)PROPOSED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	238 000	20
21	TOTAL PROPANE COMPRESSOR HORSEPOWER(ACTUAL)REQUIRED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	216 45	21



	STATION NUMBER	M-01	M-02	TOTALS
1	STATION NUMBER			
2	STATION MILEPOST	39.20	94.40	
3	STATION ELEVATION(FEET)	470	320	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED			
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED(ISO HORSEPOWER)			
6	TOTAL GAS COMPRESSOR HORSEPOWER(ISO) PROPOSED			
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			
8	GAS VOLUME INTO STATION(MMCFD)			
9	STATION FUEL GAS (MMCFD)			
10	GAS VOLUME OUT OF STATION (MMCFD)			
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)			
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)			
13	GAS COMPRESSION RATIO			
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)			
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)			
16	STATION OUTLET GAS TEMPERATURE (°F)			
17	CHILLING/COOLING DUTY (TONS) REQUIRED			
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED(ISO HORSEPOWER)			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER(ISO) PROPOSED			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			

RICHARDS ISLAND to TRAVAILLANT LAKE

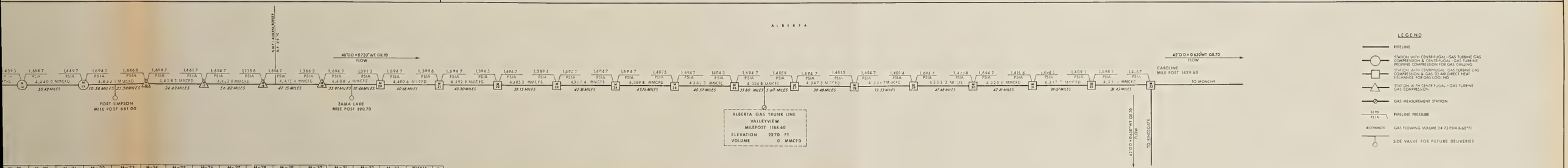
	STATION NUMBER	K-00	K-01	K-02	K-03	TOTALS
1	STATION NUMBER					
2	STATION MILEPOST	59.40	119.75	179.84	248.80	
3	STATION ELEVATION (FEET)	4170	4400	4930	4230	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED		1			1
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)		30000			
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED		30,000			30,000
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED		26,702			26,702
8	GAS VOLUME INTO STATION (MMCFD)		2,115			
9	STATION FUEL GAS (MMCFD)		51			51
10	GAS VOLUME OUT OF STATION (MMCFD)		2,148.4			
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)		1,582			
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)		1,710			
13	GAS COMPRESSION RATIO		1.336			
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)		312			
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)		732			
16	STATION OUTLET GAS TEMPERATURE (°F)		731			
17	CHILLING/COOLING DUTY (TONS) REQUIRED		0			
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED		0			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED(ISO HORSEPOWER)		0			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER(ISO) PROPOSED		0			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER(ACTUAL) REQUIRED		0			

CAROLINE to KINGSGATE

	STATION NUMBER	E-00	E-01	E-02	E-03	E-04	E-05	TOTALS
1	STATION NUMBER							
2	STATION MILEPOST	69.66	135.79	195.78	260.32	314.71	387.40	
3	STATION ELEVATION(FEET)	2970	2410	2650	2380	3310	3810	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED		1		1		1	3
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED(ISO HORSEPOWER)		30000		30000		30000	
6	TOTAL GAS COMPRESSOR HORSEPOWER(ISO) PROPOSED		30000		30000		30000	90000
7	TOTAL GAS COMPRESSOR HORSEPOWER(ACTUAL) REQUIRED		26,340		26,340		23,340	65314
8	GAS VOLUME INTO STATION(MMCFD)		2,148.4		2,140.7		2,140.7	
9	STATION FUEL GAS (MMCFD)		5.1		5.2		6.0	16.8
10	GAS VOLUME OUT OF STATION(MMCFD)		2,148.4		2,140.7		2,134.7	
11	GAS COMPRESSOR SUCTION PRESSURE(PSIA)		1,710.8		1,710.8		1,228.0	
12	GAS COMPRESSOR DISCHARGE PRESSURE(PSIA)		1,710.8		2,701.2		1,691.9	
13	GAS COMPRESSION RATIO		1.579		1.580		1.385	
14	GAS COMPRESSOR SUCTION TEMPERATURE(°F)		351		398		446	
15	GAS COMPRESSOR DISCHARGE TEMPERATURE(°F)		735		842		922	
16	STATION OUTLET GAS TEMPERATURE(°F)		734		842		922	
17	CHILLING/COOLING DUTY(TONS) REQUIRED							
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED							
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED(ISO HORSEPOWER)							
20	TOTAL PROPANE COMPRESSOR HORSEPOWER(ISO) PROPOSED							
21	TOTAL PROPANE COMPRESSOR HORSEPOWER(ACTUAL) REQUIRED							

CAROLINE to MONCHY

GAS DELIVERY LINES



M-19	M-20	M-21	M-22	M-23	M-24	M-25	M-26	M-27	M-28	M-29	M-30	M-31	M-32	M-33	TOTALS	
854.79	901.16	941.84	982.14	1020.29	1062.47	1108.23	1148.80	1190.20	1229.68	1263.21	1310.69	1353.10	1391.17	1429.60		1
1810	1100	1470	1790	2540	2520	1860	2130	2140	1600	4000	3050	2850	3400	3810		2
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	47	4
27500	27500	27500	27500	27500	27500	27500	27500	27500	27500	27500	27500	27500	27500	27500		5
55000	55000	55000	55000	55000	55000	55000	55000	55000	55000	55000	55000	55000	55000	55000	1320000	6
39.35	38.16	37.38	36.56	36.24	36.11	36.80	36.21	36.068	36.457	36.15	36.864	34.559	35.166	34.12	954.765	7
44.135	44.683	43.906	44.29	44.85	44.4	43.698	43.63	43.548	43.473	43.397	43.322	43.250	43.317	43.03		8
74	74	74	74	74	74	74	74	74	74	74	74	73	74	73	2214.4	9
44.083	44.631	43.854	44.241	44.774	44.623	43.624	43.548	43.473	43.397	43.322	43.247	43.177	43.240	43.036		10
43.610	44.282	43.520	43.889	43.834	43.691	43.308	43.068	43.005	42.961	42.886	42.885	42.810	42.838	42.814		11
1.056	1.048	1.078	1.069	1.060	1.056	1.056	1.056	1.055	1.055	1.054	1.054	1.054	1.054	1.054		12
1250	1235	1225	1230	1235	1240	1220	1220	1220	1220	1220	1220	1210	1210	1210		13
443	436	444	440	434	434	434	434	448	439	444	447	453	453	465		14
711	711	711	711	711	711	711	711	711	711	711	711	711	711	711		15
597	611	602	606	616	616	605	604	614	603	603	602	602	602	611	607	16
6	5951	6955	7079	6864	6987	7488	6396	6897	6008	2692	6982	6797	6324	6133	170468	17
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	18
5	5	5	5	5	5	5	5	5	5	5	5	5	5	5		19
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	238,000	20
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9,695	21

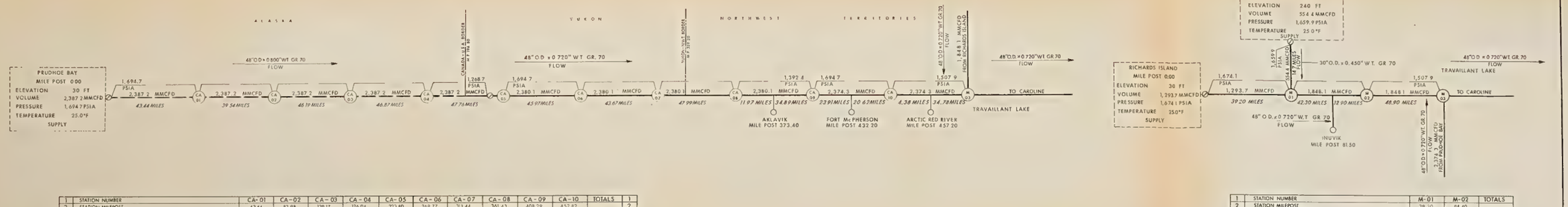
TRAVAILLANT LAKE to CAROLINE

MAINLINE

LEGEND

- PIPELINE
- STATION WITH CENTRIFUGAL - GAS TURBINE GAS COMPRESSION & CENTRIFUGAL - GAS TURBINE PROPANE COMPRESSION FOR GAS CHILLING
- STATION WITH CENTRIFUGAL GAS TURBINE GAS COMPRESSION & GAS TO AIR DIRECT HEAT EXCHANGE FOR GAS COOLING
- STATION WITH CENTRIFUGAL - GAS TURBINE GAS COMPRESSION
- GAS MEASUREMENT STATION
- 1695 PSIA — PIPELINE PRESSURE
- 4107 MMCFD — GAS FLOWING VOLUME (14.73 PSIA & 60°F)
- SIDE VALVE FOR FUTURE DELIVERIES

DESIGNED BY	NORTHERN ENGINEERING SERVICES COMPANY LIMITED CALGARY, ALBERTA ENGINEERS FOR		
DRAWN BY	CANADIAN ARCTIC GAS PIPELINE LIMITED		
CHECKED BY	FLOW DIAGRAM	SCALE	
ENGINEERS APPROVAL	MAXIMUM CAPACITY	DATE	
PROJECT MANAGER	AVERAGE WINTER CONDITIONS - OPERATING YEAR 4	PROJECT No.	
	SECTION 1-7	REV.	



		CA-01	CA-02	CA-03	CA-04	CA-05	CA-06	CA-07	CA-08	CA-09	CA-10	TOTALS	
1	STATION NUMBER												1
2	STATION MILEPOST	43 44	82 98	129 17	176 04	223 80	269 77	313 44	361 43	408 29	457 82		2
3	STATION ELEVATION (FEET)	150	690	510	290	250	120	300	60	30	150		3
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED					1				1		2	4
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)					30,000				30,000			5
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED					30,000				30,000		60,000	6
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED					24,341				16,168		40,509	7
8	GAS VOLUME INTO STATION (MMCFD)					2,387 2				2,380 1			8
9	STATION FUEL GAS (MMCFD)					21				5 8		12 9	9
10	GAS VOLUME OUT OF STATION (MMCFD)					2,380 1				2,374 3			10
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)					1,267.2				1,391.0			11
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)					1,697.5				1,697.4			12
13	GAS COMPRESSION RATIO					1-340				1-220			13
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)					120				16.7			14
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)					49.8				41.9			15
16	STATION OUTLET GAS TEMPERATURE (°F)					75.0				75.0			16
17	CHILLING / COOLING DUTY (TONS) REQUIRED					9,278				6,375		15,673	17
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED					1				1		2	18
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)					17,000				17,000			19
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED					17,000				17,000		34,000	20
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED					10,005				7,994		17,999	21

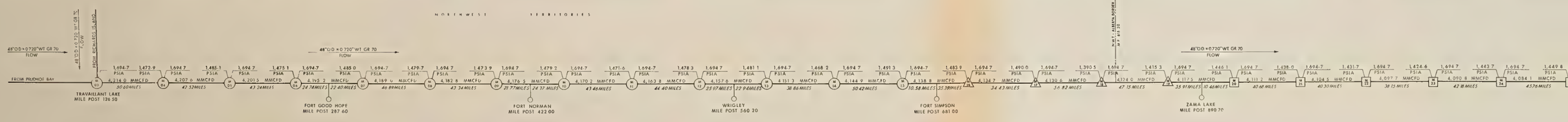
PRUDHOE BAY to TRAVAILLANT LAKE
(COASTAL ROUTE)

RICHARDS ISLAND to TRAVAILLANT LAKE

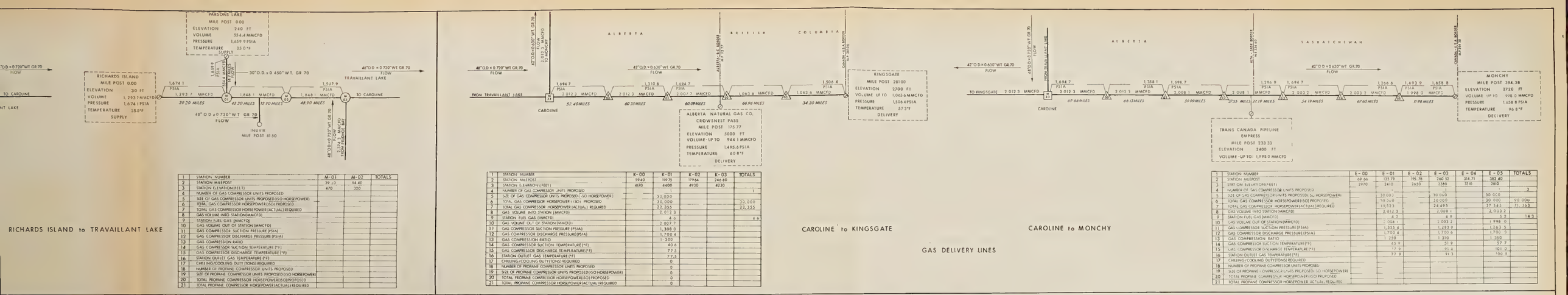
GAS SUPPLY LINES

		M-01	M-02	TOTALS
1	STATION NUMBER			
2	STATION MILEPOST	39 20	94 40	
3	STATION ELEVATION (FEET)	470	320	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED			
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED			
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			
8	GAS VOLUME INTO STATION (MMCFD)			
9	STATION FUEL GAS (MMCFD)			
10	GAS VOLUME OUT OF STATION (MMCFD)			
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)			
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)			
13	GAS COMPRESSION RATIO			
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)			
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)			
16	STATION OUTLET GAS TEMPERATURE (°F)			
17	CHILLING/COOLING DUTY (TONS) REQUIRED			
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			

		K-00	K-00
1	STATION NUMBER		
2	STATION MILEPOST	59 40	110
3	STATION ELEVATION (FEET)	4170	440
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED		
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)		30,00
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED		30,00
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED		23,35
8	GAS VOLUME INTO STATION (MMCFD)		2,01
9	STATION FUEL GAS (MMCFD)		
10	GAS VOLUME OUT OF STATION (MMCFD)		2 00
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)		1,30
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)		1 70
13	GAS COMPRESSION RATIO		1 30
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)		
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)		
16	STATION OUTLET GAS TEMPERATURE (°F)		
17	CHILLING/COOLING DUTY (TONS) REQUIRED		
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED		
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)		
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED		
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED		



		M-03	M-04	M-05	M-06	M-07	M-08	M-09	M-10	M-11	M-12	M-13	M-14	M-15	M-16	M-17	M-18		M-19	M-20	M-21	M-22	M-23	M-24	M-25	M-26	M-27	M-28	M-29	M-30	M-31	M-32	M-33	TOTALS	
1	STATION NUMBER																	1																	1
2	STATION MILEPOST	126 50	177 10	219 62	267 86	310 00	356 89	400 23	446 37	489 83	534 23	583 14	620 00	670 42	726 39	750 82	807 64	2	854 79	901 16	941 84	987 14	1020 29	1062 47	1108 23	1148 80	1190 20	1229 68	1263 21	1310 69	1353 10	1391 12	1429 60		2
3	STATION ELEVATION (FEET)	810	440	530	590	470	310	310	430	700	810	520	1370	930	950	1480	1440	3	1810	1100	1470	1790	2340	2520	1800	2120	2140	2000	4000	3050	2850	3400	3980		3
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	47	4
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	27,500	5	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500		5
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	55,000	6	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	1,320,000	6
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	18,459	20,346	19,021	19,917	18,949	19,538	19,971	19,572	20,204	19,470	19,329	20,209	18,166	18,528	18,858	20,219	7	29,288	27,916	29,979	30,852	31,537	29,217	28,640	30,709	29,766	30,605	30,643	26,297	28,066	29,565	28,560	761,917	7
8	GAS VOLUME INTO STATION (MMCFD)	4,222 4	4,214 0	4,207 6	4,201 3	4,195 7	4,189 0	4,182 8	4,176 5	4,170 2	4,163 8	4,157 6	4,151 3	4,144 9	4,138 8	4,134 7	4,130 6	8	4,124 0	4,117 5	4,111 2	4,104 5	4,097 7	4,090 8	4,084 1	4,077 7	4,070 9	4,064 2	4,057 3	4,050 5	4,044 3	4,037 8	4,031 2		8
9	STATION FUEL GAS (MMCFD)	8 4	8 4	6 1	6 3	6 2	6 2	6 3	6 3	6 4	6 2	6 3	6 4	6 1	6 2	6 1	6 6	9	6 5	6 3	6 7	6 9	6 9	6 7	6 4	6 9	6 7	6 8	6 9	6 5	6 5	6 6	6 6	197 8	9
10	GAS VOLUME OUT OF STATION (MMCFD)	4,214 0	4 207 6	4 201 3	4 195 2	4 189 0	4 182 8	4 176 5	4,170 2	4,163 8	4,157 6	4,151 3	4,144 9	4,138 8	4,134 7	4,130 6	4,124 0	10	4,117 5	4,111 2	4,104 5	4,097 7	4,090 8	4,084 1	4,077 7	4,070 9	4,064 2	4,057 3	4,050 5	4,044 3	4,037 8	4,031 2	4,024 6		10
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)	1,503 5	1,469 1	1 481 4	1,471 4	1,481 3	1,476 0	1,470 2	1,475 3	1,467 9	1,474 6	1,477 4	1,464 6	1,487 8	1,480 3	1,486 1	1,386 4	11	1,411 0	1,441 5	1,433 3	1,426 9	1,419 8	1,439 0	1 445 1	1,432 7	1,436 2	1,428 9	1 424 7	1,461 9	1,447 4	1,435 2	442 6		11
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)	1,702 8	1,702 5	1,702 3	1,702 4	1,702 4	1,702 4	1,702 4	1,702 4	1,702 4	1,702 3	1,702 3	1,702 2	1,702 2	1,702 2	1,689 5	1,689 7	12	1,699 2	1,704 2	1,704 4	1,704 3	1,704 3	1,704 3	1,704 3	1,704 3	1,704 3	1,704 3	1,704 1	1,704 1	1,704 1	1,704 1	1,704 0		12
13	GAS COMPRESSION RATIO	1 130	1,169	1 150	1,160	1 350	1,150	1,160	1,150	1,160	1,159	1,150	1,160	1,140	1,150	1,140	1,230	13	1,200	1,180	1,190	1,190	1,200	1,180	1,180	1,190	1,190	1,190	1,200	1,170	1,180	1,190	1,180		13
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)	19 2	4 6	4 2	3 7	4 1	4 7	3 9	5 1	4 4	4 2	5 4	2 8	6 8	4 4	11 7	14 3	14	26 3	39 4	47 1	47 8	46 7	48 0	49 9	50 1	50 6	56 2	47 0	50 1	50 1	50 0	50 0		14
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)	34 9	22 6	21 3	21 4	20 9	22 1	21 7	22 5	22 4	21 6	22 6	21 0	21 1	21 1	28 3	40 4	15	51 0	62 2	71 2	72 5	72 1	71 5	72 9	74 2	74 5	74 8	71 9	71 4	72 8	74 0	73 2		15
16	STATION OUTLET GAS TEMPERATURE (°F)	12 9	12 6	12 7	12 0	12 2	12 6	12 2	13 0	12 4	12 1	12 8	11 1	11 9	11 0	12 0	40 5	16	50 9	60 7	61 7	61 3	60 5	61 1	63 6	63 2	64 0	62 6	60 3	61 7	63 5	63 1	62 1		16
17	CHILLING/COOLING DUTY (TONS) REQUIRED	13,026	6,453	5,375	6,047	5,625	6,071	6,109	6,074	6,395	6,074	6,277	6,337	5,855	0	0	0	17	0	624	5,007	5,952	6,109	5,548	4,865	5,859	5,500	6,425	6,148	5,071	4,819	5,684	5,764	159,093	17
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED	2	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	18	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	14	18
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	17,000	17,060	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	0	0	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		19
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED	34 050	17 060	17 000	17 000	17 000	17 000	17 000	17 000	17 000	17 000	17 000	17 000	17,000	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	238,060	20
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	14, 288	6, 768	6 314	6 382	6, 257	6 436	6 494	6, 465	6 853	6,466	6,691	6, 807	6, 332	0	0	0	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	92,573	21



RICHARDS ISLAND to TRAVAILLANT LAKE

		M-01	M-02	TOTALS
1	STATION NUMBER			
2	STATION MILEPOST	39.20	94.40	
3	STATION ELEVATION (FEET)	470	320	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED			
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED			
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			
8	GAS VOLUME INTO STATION (MMCFD)			
9	STATION FUEL GAS (MMCFD)			
10	GAS VOLUME OUT OF STATION (MMCFD)			
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)			
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)			
13	GAS COMPRESSION RATIO			
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)			
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)			
16	STATION OUTLET GAS TEMPERATURE (°F)			
17	CHILLING/COOLING DUTY (TONS) REQUIRED			
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			

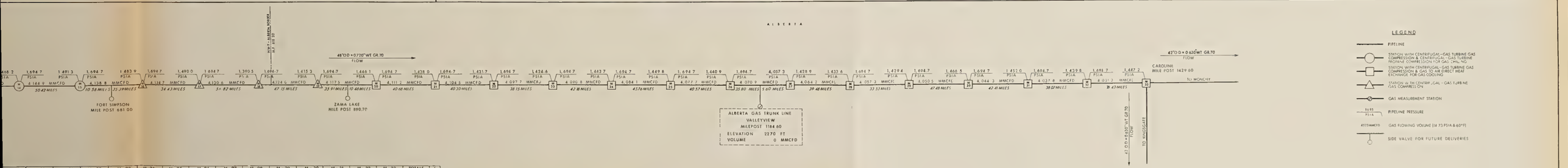
CAROLINE to KINGSGATE

		K-00	K-01	K-02	K-03	TOTALS
1	STATION NUMBER					
2	STATION MILEPOST	5940	11975	17984	24680	
3	STATION ELEVATION (FEET)	4170	4400	4930	4230	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED		1			1
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)		30,000			
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED		30,000			30,000
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED		22,355			22,355
8	GAS VOLUME INTO STATION (MMCFD)		2,012.3			
9	STATION FUEL GAS (MMCFD)		4.6			4.6
10	GAS VOLUME OUT OF STATION (MMCFD)		2,007.7			
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)		1,308.0			
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)		1,700.4			
13	GAS COMPRESSION RATIO		1.300			
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)		40.6			
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)		77.5			
16	STATION OUTLET GAS TEMPERATURE (°F)		77.5			
17	CHILLING/COOLING DUTY (TONS) REQUIRED		0			
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED		0			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)		0			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED		0			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED		0			

CAROLINE to MONCHY

		E-00	E-01	E-02	E-03	E-04	E-05	TOTALS
1	STATION NUMBER							
2	STATION MILEPOST	69.66	125.79	195.78	260.12	314.71	387.40	
3	STATION ELEVATION (FEET)	2970	2410	2650	2380	3310	2810	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED		-		1		1	3
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)		30 000		30 000		30 000	
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED		30 000		30 000		30 000	90 000
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED		19 523		24 495		27 145	71 163
8	GAS VOLUME INTO STATION (MMCFD)		2 012.3		2 008.1		2 002.2	
9	STATION FUEL GAS (MMCFD)		4.2		4.9		5.2	14.3
10	GAS VOLUME OUT OF STATION (MMCFD)		2 008.1		2 002.2		1 998.0	
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)		1,355.4		1,293.2		1,263.5	
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)		1,700.4		1,700.6		1,700.3	
13	GAS COMPRESSION RATIO		1.250		1.310		1.350	
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)		63.9		51.9		57.7	
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)		77.9		91.1		101.0	
16	STATION OUTLET GAS TEMPERATURE (°F)		77.9		91.3		100.9	
17	CHILLING/COOLING DUTY (TONS) REQUIRED							
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED							
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)							
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED							
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED							

GAS DELIVERY LINES



TRAVAILLANT LAKE to CAROLINE

MAINLINE

	M-19	M-20	M-21	M-22	M-23	M-24	M-25	M-26	M-27	M-28	M-29	M-30	M-31	M-32	M-33	TOTALS	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1
2	454.79	900.16	941.84	992.14	1090.29	1502.67	1608.23	1748.80	1909.30	1726.66	1263.21	1310.69	1353.10	1391.17	1429.60		2
3	1810	1109	1470	1799	2340	2320	1860	2130	2140	2600	4000	3050	2850	3400	3880		3
4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	47	4
5	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500		5
6	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	1,330,000	6
7	29,288	27,916	29,479	30,853	31,557	29,317	28,440	30,209	29,765	30,600	30,843	26,297	28,066	29,565	28,360	761,812	7
8	4,194.0	4,177.5	4,111.2	4,104.5	4,092.7	4,090.8	4,084.1	4,077.7	4,070.9	4,064.2	4,057.3	4,050.5	4,044.3	4,037.8	4,031.2		8
9	6.5	6.3	6.7	6.8	6.9	6.7	6.4	6.8	6.7	6.9	6.8	6.7	6.5	6.6	6.6	197.8	9
10	4,117.5	4,111.2	4,104.5	4,097.7	4,090.8	4,084.1	4,077.7	4,070.9	4,064.2	4,057.3	4,050.5	4,044.3	4,037.8	4,031.2	4,024.6		10
11	1,491.0	1,441.5	1,433.3	1,426.9	1,419.8	1,439.0	1,445.1	1,432.7	1,436.2	1,428.9	1,424.7	1,461.9	1,447.4	1,435.2	1,442.6		11
12	1,699.2	1,704.2	1,704.4	1,704.3	1,704.3	1,704.3	1,704.3	1,704.3	1,704.3	1,704.2	1,704.1	1,704.1	1,704.1	1,704.1	1,704.0		12
13	1,210.0	1,180.1	1,190.1	1,190.1	1,190.1	1,180.1	1,180.1	1,190.1	1,190.1	1,190.1	1,209.1	1,170.1	1,180.1	1,190.1	1,180.1		13
14	25.5	39.4	47.1	47.8	46.7	48.0	49.9	50.1	50.6	56.2	47.0	50.1	50.1	50.0	50.0		14
15	51.0	63.2	71.2	72.5	72.1	71.5	72.9	74.6	74.5	74.8	71.9	71.4	72.8	74.0	73.2		15
16	50.9	60.7	61.7	61.3	60.6	61.1	63.6	63.2	64.0	62.6	60.3	61.7	63.5	63.1	62.1		16
17	0	624	5,007	5,952	6,109	5548	4865	5859	5300	6,423	6 148	5,071	4,819	5684	5,764	159,093	17
18	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	14	18
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		19
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	238,040	20
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	92,373	21

NORTHERN ENGINEERING SERVICES COMPANY LIMITED
CALGARY ALBERTA
ENGINEERS FOR
CANADIAN ARCTIC GAS PIPELINE LIMITED

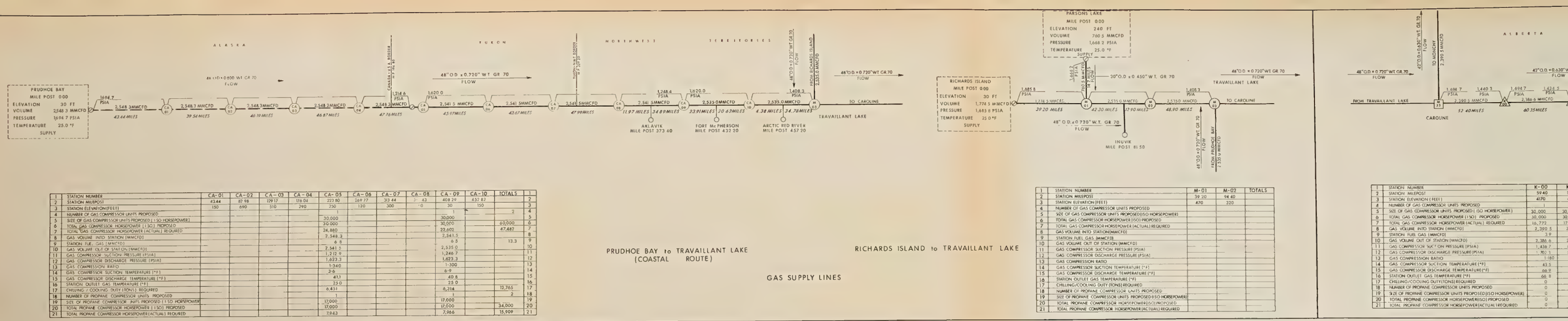
DESIGNED BY
DRAWN BY
CHECKED BY
ENGINEER-APPR. (A)
PR. ENG. MANAGER

FLOW DIAGRAM
MAXIMUM CAPACITY
AVERAGE SUMMER CONDITIONS - OPERATING YEAR 4

SCALE
DATE
PROJECT No.

SECTION I-8

REV.



	STATION NUMBER	CA-01	CA-02	CA-03	CA-04	CA-05	CA-06	CA-07	CA-08	CA-09	CA-10	TOTALS
1	STATION NUMBER	#344	82 98	129 17	176 04	223 80	269 77	313 44	[illegible] 62	408 39	457 87	
2	STATION MILEPOST	150	690	310	290	250	120	300	-0	30	150	
3	STATION ELEVATION (FEET)											2
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED					30,000				30,000		
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (1 ISO HORSEPOWER)					30 000				30,000		60,000
6	TOTAL GAS COMPRESSOR HORSEPOWER (1 ISO) PROPOSED					24,880				22,602		47,482
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED					2,548.3				2,541.5		
8	GAS VOLUME INTO STATION (MMCFD)					6 8				6 5		13.3
9	STATION FUEL GAS (MMCFD)					2,541 5				2,535 0		
10	GAS VOLUME OUT OF STATION (MMCFD)					1,212 9				1,246 7		
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)					1,623 3				1,623 3		
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)					1-340				1-300		
13	GAS COMPRESSION RATIO					3-8				6-9		
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)					413				40 8		
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)					23 0				25 0		
16	STATION OUTLET GAS TEMPERATURE (°F)					0,431				0,316		12,765
17	CHILLING / COOLING DUTY (TONS) REQUIRED					1				1		2
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED					17,000				17,000		
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (1 ISO HORSEPOWER					17,000				17,000		34,000
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (1 ISO) PROPOSED					7,643				7,986		15,909
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED											

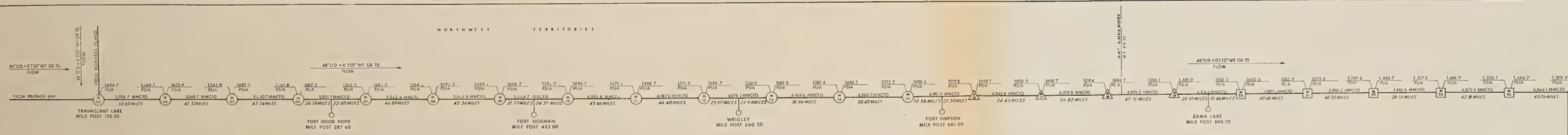
PRUDHOE BAY to TRAVAILLANT LAKE
(COASTAL ROUTE)

GAS SUPPLY LINES

RICHARDS ISLAND to TRAVAILLANT LAKE

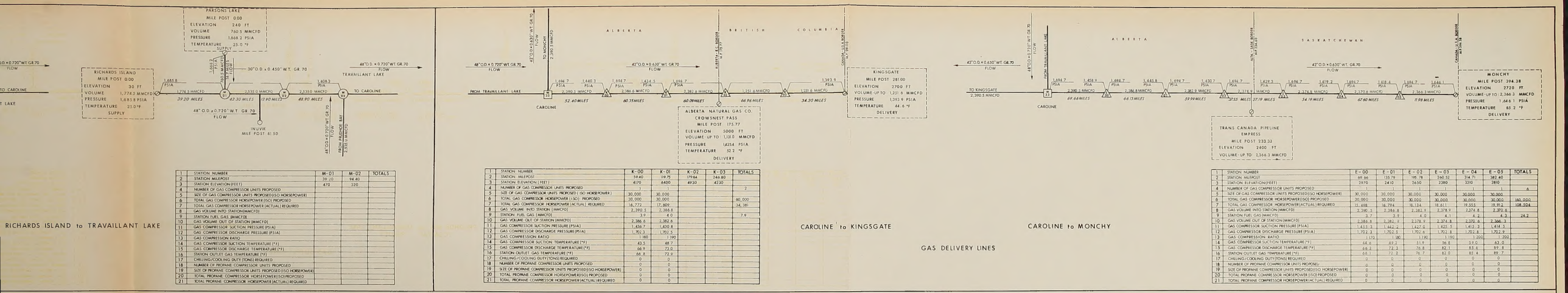
	STATION NUMBER	M-01	M-02	TOTALS
1	STATION NUMBER	39 20	94 40	
2	STATION MILEPOST	470	320	
3	STATION ELEVATION (FEET)			
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED			
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED			
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			
8	GAS VOLUME INTO STATION (MMCFD)			
9	STATION FUEL GAS (MMCFD)			
10	GAS VOLUME OUT OF STATION (MMCFD)			
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)			
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)			
13	GAS COMPRESSION RATIO			
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)			
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)			
16	STATION OUTLET GAS TEMPERATURE (°F)			
17	CHILLING/COOLING DUTY (TONS) REQUIRED			
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			

	STATION NUMBER	K-00
1	STATION NUMBER	
2	STATION MILEPOST	59 40
3	STATION ELEVATION (FEET)	4170
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED	1
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	30,000
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED	30,000
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	16,772
8	GAS VOLUME INTO STATION (MMCFD)	2,390 5
9	STATION FUEL GAS (MMCFD)	3 9
10	GAS VOLUME OUT OF STATION (MMCFD)	2,386 6
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)	1,436 7
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)	1 901 5
13	GAS COMPRESSION RATIO	1-180
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)	43 5
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)	66 9
16	STATION OUTLET GAS TEMPERATURE (°F)	66 8
17	CHILLING/COOLING DUTY(TONS) REQUIRED	0
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED	0
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	0
20	TOTAL PROPANE COMPRESSOR HORSEPOWER(ISO) PROPOSED	0
21	TOTAL PROPANE COMPRESSOR HORSEPOWER(ACTUAL) REQUIRED	0



	STATION NUMBER	M-03	M-04	M-05	M-06	M-07	M-08	M-09	M-10	M-11	M-12	M-13	M-14	M-15	M-16	M-17	M-18
2	STATION MILEPOST	126 50	177 10	219 62	262 86	310 00	356 89	400 23	446 37	489 83	534 23	583 14	620 00	670 42	716 39	750 82	807 64
3	STATION ELEVATION (FEET)	810	440	530	690	470	310	520	450	700	810	520	1370	930	950	1480	1440
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	30,000	30,000	30,000	30,000	30,000	30,000	30 000	30,000	30,000	30,000	30,000	30,000	30,000	30 000	30 000	27500
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED	30,000	30,000	30,000	30,000	30,000	30,000	30 000	30,000	30,000	30,000	30,000	30,000	30,000	30 000	30,000	55,000
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	35,193	27,827	27,543	27,353	27,524	27,418	26,931	26,781	26,582	26,954	26,739	26,126	25,776	34 619	33 567	67 843
8	GAS VOLUME INTO STATION (MMCFD)	5,070 0	5,058 7	5,049 7	5,040 7	5,031 7	5,022 6	5,013 6	5,004 7	4,995 8	4,987 0	4,978 2	4,969 4	4,960 7	4,951 9	4,943 8	4,970 8
9	STATION FUEL GAS (MMCFD)	13 3	9 0	9 0	9 0	9 1	9 0	8 9	8 9	8 8	8 8	8 8	8 7	8 8	6 1	6 0	12 0
10	GAS VOLUME OUT OF STATION (MMCFD)	5,058 7	5,049 7	5,040 7	5,031 7	5,022 6	5,013 6	5,004 7	4,995 8	4,987 0	4,978 2	4,969 4	4,960 7	4,951 9	4,943 8	4,970 8	4,970 8
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)	1,402 2	1,347 8	1,295 2	1,356 0	1,357 5	1,358 4	1,363 5	1,365 0	1,365 5	1,369 9	1,369 3	1,374 9	1,369 7	1,374 3	1,400 7	1,212 4
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)	1,706 6	1,687 5	1,698 2	1,698 7	1,703 4	1,703 2	1,708 0	1,706 0	1,705 9	1,705 9	1,701 9	1,705 7	1,705 6	1,700 4	1,700 7	1,701 3
13	GAS COMPRESSION RATIO	1 220	1 240	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 250	1 240	1 240	1 240	1 210	1 400
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)	11 1	-1 9	-1 0	-1 3	-1 2	-9	-9	-4	-6	-4	-3	-5	-5	-2	10 6	9 6
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)	36 1	26 2	26 9	26 5	26 7	27 0	26 8	27 2	26 9	26 6	27 2	28 0	26 6	25 9	35 2	54 7
16	STATION OUTLET GAS TEMPERATURE (°F)	14 9	15 0	15 3	14 7	14 6	15 2	14 8	15 4	15 1	14 8	15 7	14 1	14 7	25 7	35 0	54 8
17	CHILLING/COOLING DUTY (TONS) REQUIRED	17,087	8,515	8,771	8,967	9,200	8,909	9,034	8,841	8,837	8,837	8,678	8,932	8,879	--	--	--
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED	2	1	1	1	1	1	1	1	1	1	1	1	1	--	--	--
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (1 ISO HORSEPOWER)	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	--	--	--
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED	34,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	--	--	--
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	20,118	8,771	9,029	9,198	9,817	9,355	9,312	9,101	9,083	9,069	8,962	9,240	9,104	--	--	--

	STATION NUMBER	M-19	M-20	M-21	M-22	M-23	M-24	M-25	M-26	M-27	M-28	M-29	M-30	M-31	M-32	M-33	TOTALS
2	STATION MILEPOST	854 79	901 16	941 84	982 14	1020 29	1062 47	1108 73	1148 80	1190 20	1229 68	1263 21	1310 69	1352 10	1391 17	1429 00	
3	STATION ELEVATION (FEET)	1810	1100	1470	1790	2540	2320	1860	2130	2140	2600	4000	3050	2850	3400	3860	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	42
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	27,500	27,500	27,500	27,500	27 500	27,500	27 500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED	55,000	55,000	55,000	55,000	55 000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	1,320,000
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	62,523	63,874	67 733	58,323	54,367	53,309	54,444	52, 75	52,539	51,983	49 363	50,967	20,522	49 065	48, 84	1,222,682
8	GAS VOLUME INTO STATION (MMCFD)	4,929 2	4,918 6	4,907 2	4,896 2	4,885 9	4,875 9	4,866 1	4,856 2	4,846 6	4,837 0	4,827 4	4,818 2	4,808 7	4,799 3	4,790	
9	STATION FUEL GAS (MMCFD)	10 6	11 4	11 0	10 2	9 9	9 8	9 6	9 6	9 6	9 6	9 4	9 2	9 5	8 4	9 2	289.0
10	GAS VOLUME OUT OF STATION (MMCFD)	4,918 6	4,907 2	4,896 2	4,885 8	4,875 9	4,866 1	4,856 2	4,846 6	4,837 0	4,827 4	4,818 2	4,808 7	4,799 3	4,790	1,341 2	
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)	1,248 6	1,247 3	1,255 2	1,290 0	1,310 3	1,319 0	1,312 7	1,323 3	1,331 5	1,322 7	1,337 0	1,331 0	1,332 0	1,332 2	1,344 2	
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)	1,698 1	1,664 9	1,693 6	1,708 6	1,708 4	1,708 4	1,708 4	1,708 2	1,708 2	1,708 2	1,708 0	1,708 1	1,708 0	1,707 9	1,707 8	
13	GAS COMPRESSION RATIO	1 360	1 330	1 355	1 330	1 300	1 300	1 300	1 290	1 290	1 290	1 280	1 280	1 280	1 280	1 270	
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)	31 1	51 6	39 1	39 2	39 5	40 9	41 5	40 2	40 9	40 3	39 8	42 6	41 2	40 7	41 2	
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)	73 7	93 3	81 3	79 0	76 3	77 0	78 4	75 8	76 8	75 8	73 4	77 3	76 4	75 9	74 3	
16	STATION OUTLET GAS TEMPERATURE (°F)	73 5	92 7	80 7	80 5	60 5	60 5	60 4	60 4	60 4	60 3	60 3	60 2	60 2	60 1	60 0	
17	CHILLING/COOLING DUTY (TONS) REQUIRED	20, 818	12, 693	12, 001	--	10, 322	10, 726	11, 610	9, 920	10, 540	9, 985	8, 451	10, 925	0, 241	9, 488	9, 186	281, 262
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (1 ISO HORSEPOWER)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	238,000
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	120,959



	STATION NUMBER	M-01	M-02	TOTALS
1	STATION NUMBER	39.10	94.40	
2	STATION MILEPOST	470	320	
3	STATION ELEVATION (FEET)			
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED			
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED			
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			
8	GAS VOLUME INTO STATION (MMCFD)			
9	STATION FUEL GAS (MMCFD)			
10	GAS VOLUME OUT OF STATION (MMCFD)			
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)			
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)			
13	GAS COMPRESSION RATIO			
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)			
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)			
16	STATION OUTLET GAS TEMPERATURE (°F)			
17	CHILLING/COOLING DUTY (TONS) REQUIRED			
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			

RICHARDS ISLAND to TRAVAILLANT LAKE

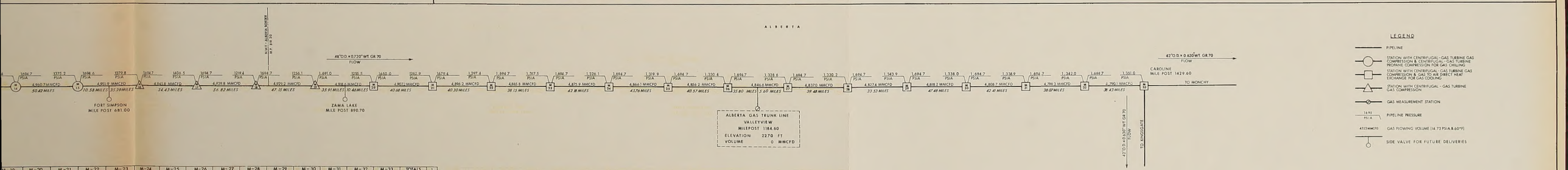
	STATION NUMBER	K-00	K-01	K-02	K-03	TOTALS
1	STATION NUMBER	59.40	119.75	179.86	246.80	
2	STATION MILEPOST	4170	4400	4930	4230	
3	STATION ELEVATION (FEET)	1	1			2
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED	30,000	30,000			
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	30,000	30,000			60,000
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED	16,772	17,609			34,381
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	2,390.5	2,386.8			
8	GAS VOLUME INTO STATION (MMCFD)	3.9	4.0			7.9
9	STATION FUEL GAS (MMCFD)	2,386.6	2,382.6			
10	GAS VOLUME OUT OF STATION (MMCFD)	1,436.7	1,430.8			
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)	1,702.3	1,702.3			
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)	1.190	1.190			
13	GAS COMPRESSION RATIO	43.5	48.7			
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)	66.9	73.0			
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)	66.8	72.9			
16	STATION OUTLET GAS TEMPERATURE (°F)	0	0			
17	CHILLING/COOLING DUTY (TONS) REQUIRED	0	0			
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED	0	0			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	0	0			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED	0	0			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	0	0			

CAROLINE to KINGSGATE

CAROLINE to MONCHY

GAS DELIVERY LINES

	STATION NUMBER	E-00	E-01	E-02	E-03	E-04	E-05	TOTALS
1	STATION NUMBER	99.86	135.79	195.78	260.52	314.71	387.40	
2	STATION MILEPOST	2970	2410	2650	2380	3310	2810	
3	STATION ELEVATION (FEET)	1	1	1	1	1	1	6
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED	30,000	30,000	30,000	30,000	30,000	30,000	
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	30,000	30,000	30,000	30,000	30,000	30,000	180,000
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED	30,000	30,000	30,000	30,000	30,000	30,000	180,000
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	15,698	16,794	16,134	18,611	19,955	19,912	108,104
8	GAS VOLUME INTO STATION (MMCFD)	2,390.5	2,386.8	2,382.9	2,378.9	2,374.8	2,370.6	
9	STATION FUEL GAS (MMCFD)	3.7	3.9	4.0	4.1	4.2	4.3	24.2
10	GAS VOLUME OUT OF STATION (MMCFD)	2,386.8	2,382.9	2,378.9	2,374.8	2,370.6	2,366.3	
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)	1,425.3	1,662.2	1,427.0	1,425.5	1,413.3	1,414.5	
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)	1,702.3	1,702.5	1,702.6	1,702.8	1,702.8	1,702.9	
13	GAS COMPRESSION RATIO	1.170	1.190	1.190	1.190	1.200	1.200	
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)	44.6	49.2	51.9	56.8	59.0	63.0	
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)	66.2	72.1	76.8	82.1	85.4	89.8	
16	STATION OUTLET GAS TEMPERATURE (°F)	66.1	72.3	76.7	82.0	85.4	89.7	
17	CHILLING/COOLING DUTY (TONS) REQUIRED	0	0	0	0	0	0	
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED	0	0	0	0	0	0	
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	0	0	0	0	0	0	
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED	0	0	0	0	0	0	
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	0	0	0	0	0	0	



	M-19	M-20	M-21	M-22	M-23	M-24	M-25	M-26	M-27	M-28	M-29	M-30	M-31	M-32	M-33	TOTALS	
1	854.79	901.16	941.84	982.14	1020.29	1062.47	1108.23	1148.80	1190.20	1229.68	1263.21	1310.69	1353.10	1391.17	1429.60		2
2	1810	1100	1470	1790	2540	2520	1860	2130	2140	2600	4000	3050	2830	3400	3680		3
3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	42	4
4	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500		5
5	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	1,320,000	6
6	2,933	63,874	60,733	58,233	54,562	53,309	54,444	52,175	52,539	51,983	49,363	50,967	50,522	49,665	48,184	1,422,682	7
7	1,929.2	4,918.6	4,907.2	4,890.2	4,885.8	4,875.9	4,866.1	4,856.2	4,846.6	4,837.0	4,827.4	4,818.2	4,808.7	4,799.3	4,790.1		8
8	10.6	11.4	11.0	10.4	9.9	9.8	9.9	9.6	9.6	9.6	9.2	9.3	9.4	9.2	9.1	289.0	9
9	5,918.6	4,907.2	4,896.2	4,885.8	4,875.9	4,866.1	4,856.2	4,846.6	4,837.0	4,827.4	4,818.2	4,808.7	4,799.3	4,790.1	4,781.0		10
10	1,248.6	1,247.3	1,255.2	1,290.0	1,310.3	1,319.0	1,312.7	1,323.3	1,321.5	1,323.2	1,327.0	1,321.0	1,331.0	1,335.2	1,344.2		11
11	1,698.1	1,664.9	1,692.6	1,708.6	1,708.6	1,708.6	1,708.4	1,708.2	1,708.2	1,708.1	1,708.0	1,708.0	1,708.0	1,708.0	1,707.9	1,707.8	12
12	1,360	1,330	1,350	1,320	1,300	1,300	1,300	1,290	1,290	1,290	1,280	1,280	1,280	1,280	1,270		13
13	31.1	51.8	39.1	39.7	39.5	40.9	41.5	40.2	40.8	40.3	41.2	42.4	41.2	40.7	41.2		14
14	73.7	99.3	81.3	79.0	76.5	77.0	78.4	75.8	76.8	75.8	73.4	77.3	76.4	75.0	74.5		15
15	73.5	60.7	60.7	60.6	60.6	60.5	60.5	60.4	60.4	60.3	60.3	60.2	60.2	60.1	60.0		16
16		20,818	13,400	12,001	10,372	10,726	11,610	9,926	10,540	9,985	8,451	10,925	10,341	9,488	9,188	281,262	17
17																14	18
18																	19
19																238,000	20
20																129,859	21

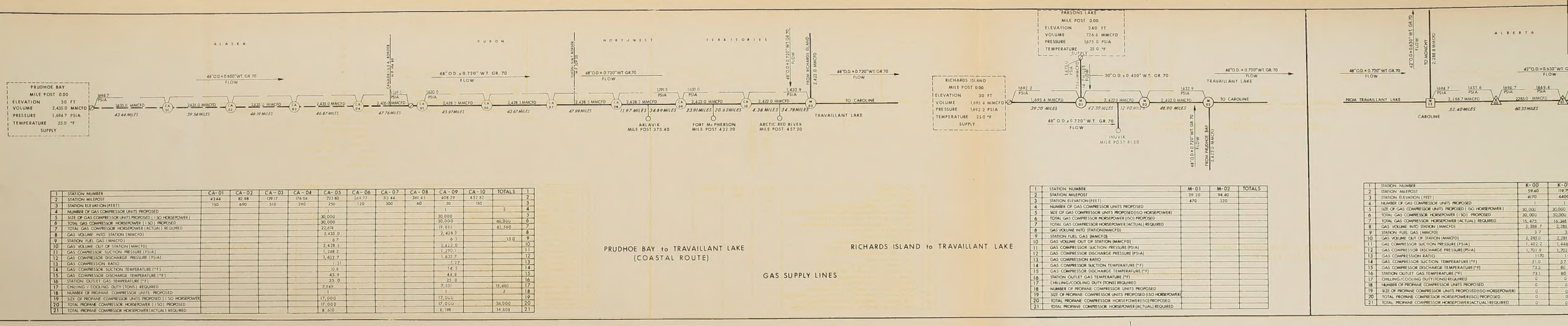
TRAVAILLANT LAKE to CAROLINE

MAINLINE

DESIGNED BY	
DRAWN BY	
CHECKED BY	
ENGINEERS APPROVAL	
PROJECT MANAGER	

NORTHERN ENGINEERING SERVICES COMPANY LIMITED
CALGARY ALBERTA
ENGINEERS FOR
CANADIAN ARCTIC GAS PIPELINE LIMITED
FLOW DIAGRAM
MAXIMUM CAPACITY
AVERAGE WINTER CONDITIONS - OPERATING YEAR 5

SCALE
DATE
PROJECT No.
SECTION I-9
REV



PRUDHOE BAY to TRAVAILLANT LAKE
(COASTAL ROUTE)

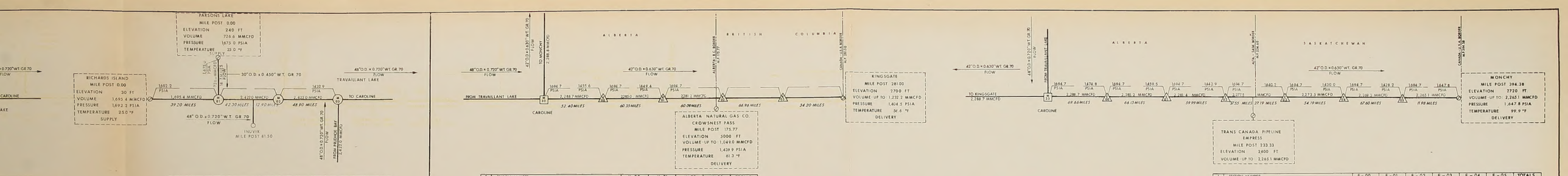
RICHARDS ISLAND to TRAVAILLANT LAKE

GAS SUPPLY LINES

	STATION NUMBER	CA-01	CA-02	CA-03	CA-04	CA-05	CA-06	CA-07	CA-08	CA-09	CA-10	TOTALS	
1	STATION NUMBER	A344	82.98	129.17	176.04	723.80	269.77	313.44	341.43	408.29	457.82		1
2	STATION MILEPOST	43.44	82.98	129.17	176.04	723.80	269.77	313.44	341.43	408.29	457.82		2
3	STATION ELEVATION (FEET)	150	690	510	290	250	120	300	60	30	150		3
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED					1				1		2	4
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)					30,000				30,000			5
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED					30,000				30,000		60,000	6
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED					22,674				19,888		42,560	7
8	GAS VOLUME INTO STATION (MMCFD)					2,435.0				2,428.3			8
9	STATION FUEL GAS (MMCFD)					6.7				6.3		13.0	9
10	GAS VOLUME OUT OF STATION (MMCFD)					2,428.3				2,422.0			10
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)					1,248.2				1,200.1			11
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)					1,632.7				1,632.7			12
13	GAS COMPRESSION RATIO					1.31				1.36			13
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)					10.9				14.2			14
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)					45.9				44.8			15
16	STATION OUTLET GAS TEMPERATURE (°F)					25.0				25.0			16
17	CHILLING / COOLING DUTY (TONS) REQUIRED					7,949				7,531		15,480	17
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED					1				1		2	18
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER					17,000				17,000			19
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED					17,000				17,000		34,000	20
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED					8,610				8,198		16,808	21

	STATION NUMBER	M-01	M-02	TOTALS	
1	STATION NUMBER				1
2	STATION MILEPOST	39.20	94.40		2
3	STATION ELEVATION (FEET)	470	320		3
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED				4
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)				5
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED				6
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED				7
8	GAS VOLUME INTO STATION(MMCFD)				8
9	STATION FUEL GAS (MMCFD)				9
10	GAS VOLUME OUT OF STATION (MMCFD)				10
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)				11
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)				12
13	GAS COMPRESSION RATIO				13
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)				14
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)				15
16	STATION OUTLET GAS TEMPERATURE (°F)				16
17	CHILLING/COOLING DUTY(TONS) REQUIRED				17
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED				18
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED(ISO HORSEPOWER)				19
20	TOTAL PROPANE COMPRESSOR HORSEPOWER(ISO) PROPOSED				20
21	TOTAL PROPANE COMPRESSOR HORSEPOWER(ACTUAL) REQUIRED				21

	STATION NUMBER	K-00	K-01	K-02	K-03	K-04	K-05	K-06	K-07	K-08	K-09	K-10	K-11	K-12	K-13	K-14	K-15	K-16	K-17	K-18	K-19	K-20	K-21	K-22	K-23	K-24	K-25	K-26	K-27	K-28	K-29	K-30	K-31	K-32	K-33	TOTALS	
1	STATION NUMBER																																				1
2	STATION MILEPOST	59.40	118.79	178.19	237.59	296.99	356.39	415.79	475.19	534.59	593.99	653.39	712.79	772.19	831.59	890.99	950.39	1009.79	1069.19	1128.59	1187.99	1247.39	1306.79	1366.19	1425.59	1484.99	1544.39	1603.79	1663.19	1722.59	1781.99	1841.39	1900.79	1960.19	2019.59		2
3	STATION ELEVATION (FEET)	4170	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400		3
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	47	4
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500		5
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	1,330,000	6
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	30,923	31,803	31,281	30,959	30,929	31,055	30,755	30,753	30,469	30,318	30,439	29,989	29,966	29,993	29,665	53,931	51,979	53,881	52,237	49,211	49,304	47,382	48,327	48,091	48,063	48,048	45,416	44,084	45,279	45,747	44,236	1,235,685	7
8	GAS VOLUME INTO STATION (MMCFD)	4,844.0	4,832.3	4,824.1	4,815.9	4,807.7	4,799.5	4,791.3	4,783.1	4,774.9	4,766.7	4,758.5	4,750.3	4,742.2	4,734.1	4,728.6	4,723.1	4,713.6	4,704.2	4,694.3	4,684.6	4,675.3	4,666.1	4,657.1	4,648.0	4,638.9	4,629.9	4,620.8	4,612.0	4,603.5	4,594.8	4,586.0	4,577.4		8
9	STATION FUEL GAS (MMCFD)	11.7	8.2	8.2	8.2	8.2	8.3	8.2	8.2	8.2	8.2	8.2	8.1	8.1	5.5	5.5	9.5	9.5	9.9	9.6	9.3	9.2	9.0	9.1	9.1	9.1	9.0	9.1	8.8	8.5	8.7	8.8	8.6	266.6	9
10	GAS VOLUME OUT OF STATION (MMCFD)	4,832.3	4,824.1	4,815.9	4,807.7	4,799.5	4,791.2	4,783.1	4,774.9	4,766.7	4,758.5	4,750.3	4,742.2	4,734.1	4,728.6	4,723.1	4,713.6	4,704.2	4,694.3	4,684.7	4,675.3	4,666.1	4,657.1	4,648.0	4,638.9	4,629.9	4,620.8	4,612.0	4,603.5	4,594.8	4,586.0	4,577.4			10
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)	1,417.3	1,383.7	1,392.8	1,394.2	1,327.4	1,397.6	1,399.1	1,400.8	1,398.2	1,398.4	1,392.9	1,394.4	1,390.3	1,288.1	1,410.4	1,247.5	1,290.2	1,308.0	1,323.1	1,335.3	1,335.9	1,348.1	1,343.5	1,345.7	1,345.4	1,344.8	1,357.4	1,360.6	1,358.6	1,356.5	1,362.5			11
12	GAS COMPRESSOR DISCHARGE PRESSURE(PSIA)	1,705.6	1,689.6	1,700.4	1,699.2	1,704.0	1,704.1	1,704.8	1,704.9	1,700.2	1,700.4	1,693.4	1,690.2	1,688.0	1,685.8	1,687.6	1,698.0	1,701.1	1,695.9	1,707.7	1,707.6	1,707.5	1,707.4	1,707.5	1,707.4	1,707.3	1,707.1	1,707.1	1,707.1	1,707.1	1,707.1	1,707.0			12
13	GAS COMPRESSION RATIO	1.190	1.220	1.220	1.220	1.220	1.220	1.220	1.220	1.220	1.220	1.220	1.220	1.220	1.210	1.200	1.360	1.320	1.300	1.290	1.280	1.280	1.270	1.270	1.270	1.270	1.270	1.260	1.250	1.260	1.260	1.250			13
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)	16.5	-2	-2	-6	-5	0.1	-3	0.7	0.2	-1	0.6	-9	-3	-3	10.3	11.0	30.8	50.3	48.3	47.6	46.0	46.5	47.8	48.9	49.1	49.0	46.6	46.8	48.2	48.8	48.9			14
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)	39.3	24.2	24.2	23.6	23.7	24.4	23.9	24.7	24.1	23.8	24.6	22.6	23.3	23.6	33.0	51.7	68.9	87.4	84.5	82.4	80.5	79.2	81.7	82.6	82.8	82.8	78.8	78.1	80.3	81.2	80.3			15
16	STATION OUTLET GAS TEMPERATURE (°F)	12.9	12.6	12.7	12.9	13.2	12.6	12.2	13.0	12.4	12.1	12.8	11.1	11.9	23.4	22.8	51.6	68.7	87.0	66.2	64.9	63.5	64.1	66.7	66.2	67.0	65.6	61.6	64.2	66.2	65.8	64.8			16
17	CHILLING/COOLING DUTY (TONS) REQUIRED	19,104	8,491	8,459	8,489	8,460	8,670	8,530	8,522	8,334	8,496	8,511	8,348	8,393	0	0	0	0	12,994	10,899	10,449	10,089	9,322	8,850	9,638	9,288	10,123	10,183	8,190	8,243	9,041	9,067	256,422	17
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED	2	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	14	18
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	238,000	19
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED	34,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	144,537	20
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	26,847	9,137	9,074	9,489	9,624	10,079	9,972	9,813	10,076	9,979	10,231	10,047	10,169	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			21



		M-01	M-02	TOTALS
1	STATION NUMBER			
2	STATION MILEPOST	39.20	94.40	
3	STATION ELEVATION (FEET)	470	320	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED			
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED			
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			
8	GAS VOLUME INTO STATION (MMCFD)			
9	STATION FUEL GAS (MMCFD)			
10	GAS VOLUME OUT OF STATION (MMCFD)			
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)			
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)			
13	GAS COMPRESSION RATIO			
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)			
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)			
16	STATION OUTLET GAS TEMPERATURE (°F)			
17	CHILLING/COOLING DUTY (TONS) REQUIRED			
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED			

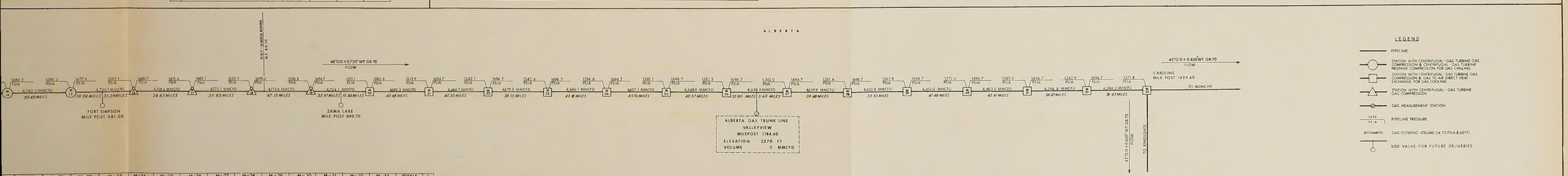
RICHARDS ISLAND to TRAVAILLANT LAKE

		K-00	K-01	K-02	K-03	TOTALS
1	STATION NUMBER					
2	STATION MILEPOST	59.40	119.75	179.84	246.80	
3	STATION ELEVATION (FEET)	4170	4400	4930	4230	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED	1	1			2
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	30,000	30,000			
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED	30,000	30,000			60,000
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	15,473	16,348			31,823
8	GAS VOLUME INTO STATION (MMCFD)	2,288.7	2,285.0			
9	STATION FUEL GAS (MMCFD)	3.7	3.8			7.5
10	GAS VOLUME OUT OF STATION (MMCFD)	2,285.0	2,281.2			
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)	1,452.2	1,446.0			
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)	1,701.9	1,702.1			
13	GAS COMPRESSION RATIO	1.170	1.180			
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)	51.0	57.3			
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)	73.2	80.4			
16	STATION OUTLET GAS TEMPERATURE (°F)	73.1	80.4			
17	CHILLING/COOLING DUTY (TONS) REQUIRED	0	0			
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED	0	0			
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	0	0			
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED	0	0			
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	0	0			

CAROLINE to KINGSGATE

GAS DELIVERY LINES

		E-00	E-01	E-02	E-03	E-04	E-05	TOTALS
1	STATION NUMBER							
2	STATION MILEPOST	69.66	135.79	195.78	260.52	314.71	367.40	
3	STATION ELEVATION (FEET)	2970	2410	2650	2380	3310	2810	
4	NUMBER OF GAS COMPRESSOR UNITS PROPOSED							6
5	SIZE OF GAS COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	30,000	30,000	30,000	30,000	30,000	30,000	
6	TOTAL GAS COMPRESSOR HORSEPOWER (ISO) PROPOSED	30,000	30,000	30,000	30,000	30,000	30,000	180,000
7	TOTAL GAS COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	14,249	15,754	17,281	17,918	18,828	19,346	103,442
8	GAS VOLUME INTO STATION (MMCFD)	2,288.7	2,286.2	2,281.4	2,277.5	2,273.5	2,269.2	
9	STATION FUEL GAS (MMCFD)	3.3	3.8	3.9	4.0	4.2	4.2	23.6
10	GAS VOLUME OUT OF STATION (MMCFD)	2,285.2	2,281.4	2,277.5	2,273.5	2,269.2	2,265.1	
11	GAS COMPRESSOR SUCTION PRESSURE (PSIA)	1,471.5	1,456.0	1,439.3	1,426.6	1,426.3	1,424.5	
12	GAS COMPRESSOR DISCHARGE PRESSURE (PSIA)	1,701.8	1,702.1	1,702.3	1,702.5	1,702.5	1,702.5	
13	GAS COMPRESSION RATIO	1.156	1.170	1.180	1.190	1.190	1.200	
14	GAS COMPRESSOR SUCTION TEMPERATURE (°F)	53.0	59.3	62.8	70.2	73.3	77.9	
15	GAS COMPRESSOR DISCHARGE TEMPERATURE (°F)	73.4	81.5	88.0	95.0	99.2	104.5	
16	STATION OUTLET GAS TEMPERATURE (°F)	73.3	81.5	87.9	94.9	99.2	104.4	
17	CHILLING/COOLING DUTY (TONS) REQUIRED	0	0	0	0	0	0	
18	NUMBER OF PROPANE COMPRESSOR UNITS PROPOSED	0	0	0	0	0	0	
19	SIZE OF PROPANE COMPRESSOR UNITS PROPOSED (ISO HORSEPOWER)	0	0	0	0	0	0	
20	TOTAL PROPANE COMPRESSOR HORSEPOWER (ISO) PROPOSED	0	0	0	0	0	0	
21	TOTAL PROPANE COMPRESSOR HORSEPOWER (ACTUAL) REQUIRED	0	0	0	0	0	0	



		M-19	M-20	M-21	M-22	M-23	M-24	M-25	M-26	M-27	M-28	M-29	M-30	M-31	M-32	M-33	TOTALS	
		879	901.16	941.84	982.14	1020.29	1062.47	1108.23	1148.80	1190.20	1229.68	1263.21	1310.69	1353.10	1391.17	1429.60		1
		0	1100	1870	1790	2540	2320	1860	2130	2140	2400	4000	3050	2850	3400	3880		3
		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	47	4
		27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500	27,500		5
		55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	1,320,000	6
		53,881	52,237	49,921	49,354	47,382	48,127	48,091	48,065	48,048	45,416	44,084	45,379	45,747	44,236	1,235,685	7
	6	4,704.2	4,694.3	4,684.6	4,675.3	4,666.1	4,657.1	4,648.0	4,638.9	4,629.9	4,620.8	4,612.0	4,603.5	4,594.8	4,586.0	4,577.4		8
		9.9	9.9	9.6	9.3	9.2	9.0	9.1	9.1	9.0	9.1	8.8	8.5	8.7	8.8	8.6	266.6	9
	1	4,694.3	4,684.4	4,675.0	4,665.6	4,657.1	4,648.0	4,638.9	4,629.9	4,620.8	4,612.0	4,603.5	4,594.8	4,586.0	4,577.4			10
	2	1,308.0	1,323.1	1,335.2	1,335.9	1,348.1	1,343.5	1,345.7	1,345.4	1,344.8	1,357.4	1,365.6	1,358.6	1,356.5	1,365.5			11
	1	1,695.9	1,707.7	1,707.6	1,707.5	1,707.5	1,707.4	1,707.5	1,707.4	1,707.3	1,707.3	1,707.1	1,707.1	1,707.1	1,707.1	1,707.0		12
	320	1,300	1,290	1,280	1,280	1,280	1,270	1,270	1,270	1,270	1,270	1,260	1,250	1,260	1,260	1,250		13
	28	50.3	49.3	47.6	46.0	46.5	47.8	47.8	48.9	49.1	49.0	48.6	46.8	48.2	48.8	48.9		14
	8	87.4	84.5	80.4	80.5	79.7	81.7	82.6	82.8	82.8	82.8	78.8	78.1	80.3	81.2	80.3		15
	7	67.0	66.2	64.9	63.6	64.1	66.7	66.2	67.0	65.6	61.6	64.2	65.2	65.8	64.8			16
		12,094	10,899	10,449	10,089	9,322	8,850	9,838	9,288	10,123	10,183	8,190	8,243	9,041	9,067		256,423	17
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	18
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		19
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	238,000	20
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	144,537	21

TRAVAILLANT LAKE to CAROLINE

MAINLINE

LEGEND

- PIPELINE
- STATION WITH CENTRIFUGAL - GAS TURBINE (GAS COMPRESSION & CENTRIFUGAL - GAS TURBINE PROPANE COMPRESSION FOR GAS CHILLING
- STATION WITH CENTRIFUGAL - GAS TURBINE GAS COMPRESSION & GAS TO AIR DIRECT HEAT EXCHANGE FOR COOLING
- STATION WITH CENTRIFUGAL - GAS TURBINE GAS COMPRESSION
- GAS MEASUREMENT STATION
- 1695 PSIA — PIPELINE PRESSURE
- 4331 MMCFD — GAS FLOWING VOLUME (14.73 PSIA & 60°F)
- SIDE VALVE FOR FUTURE DELIVERIES

DESIGNED BY
DRAWN BY
CHECKED BY
ENGINEERS APPROVAL
PROJECT MANAGER

NORTHERN ENGINEERING SERVICES (1979) LIMITED
CALGARY ALBERTA
ENGINEERS FOR

CANADIAN ARCTIC GAS PIPELINE LIMITED

FLOW DIAGRAM
MAXIMUM CAPACITY
AVERAGE SUMMER CONDITIONS - OPERATING YEAR 5

SCALE
DATE
PROJECT No.

SECTION 1-10

REV.